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WATER SUPPLY OUTLOOK FOR WASHINGTON

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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
FEB. 1, 1978

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in coaperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P.O. Box 98, Bazeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federol Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA-SCS-PORTLAND, OR 1977

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R.M. DAVIS

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON D C

Released by

GALEN S. BRIDGE

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

WILBUR G. HALLAUER

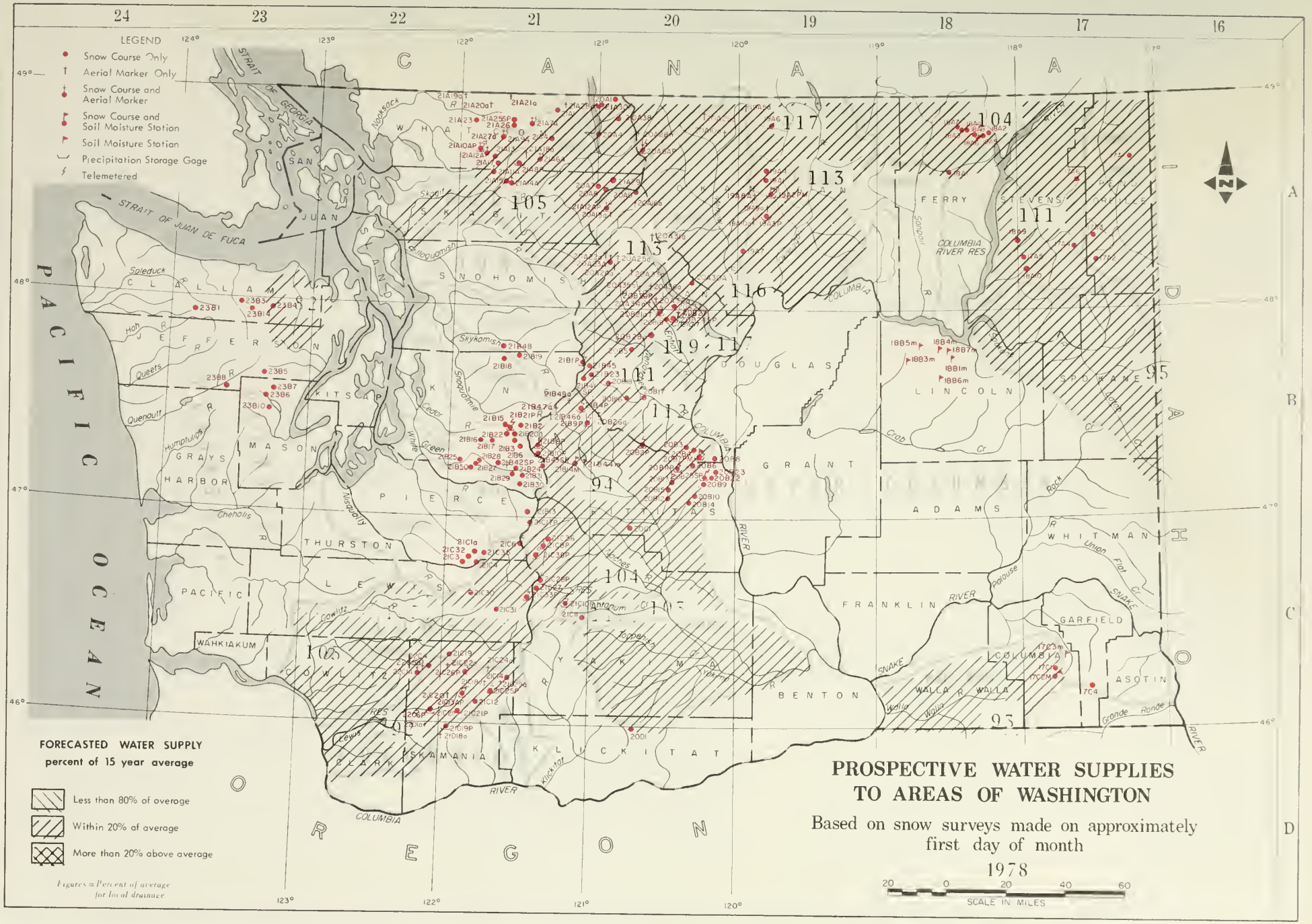
DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor
and
NORINE P. KENT, Statistical Assistant

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

USDA SCS PORTLAND OR 1978 M7-L-220788



PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON

Based on snow surveys made on approximately first day of month

1978

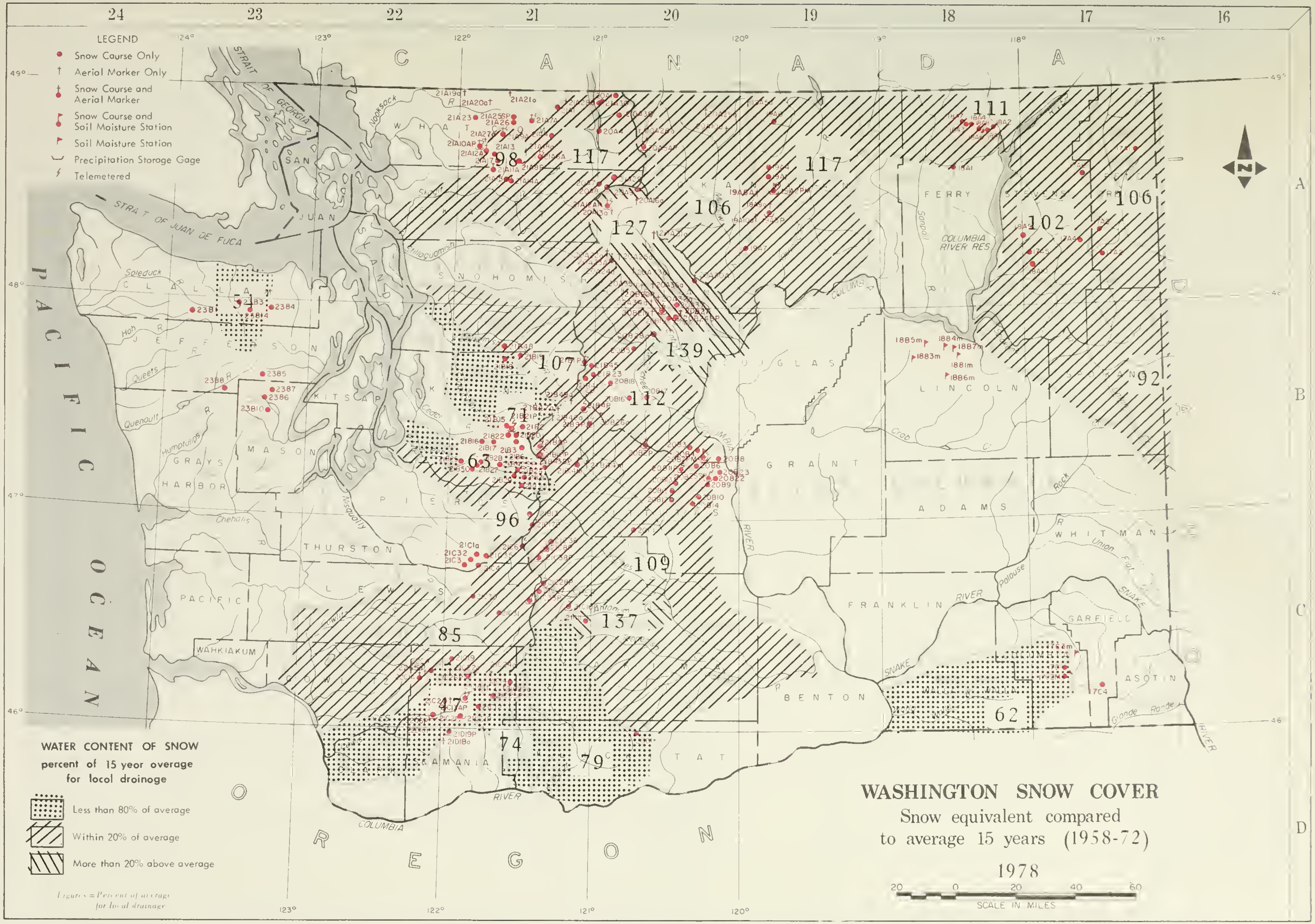
INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okonogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Blue Creek G.S.	20828a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20824SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20821a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21823	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	2085	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20818	4	26N	16E	2140
Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21845	12	26N	19E	3700
Wenotchee River (continued)					
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	2084	18	21N	20E	3400
Stemilt Creek					
Jump-Off	2088	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	2087PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	1886m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	2089	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21814M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	2001	21	6N	17E	4030
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	SE	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	SE	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	2101Ba	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	2B	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2B70
Pigtail Peak	21C33P	11	13N	11E	S900
Potato Hill	21C14	36	10N	10E	4S00
Willame Creek	21C30	3	13N	8E	3250
PUGET SOUND DRAINAGE					
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	1SN	BE	5500
Stem Glade	21C1	13	15N	8E	50S0
White River					
Corral Pass	21B13	30	18N	11E	6000
Green River					
Airstrip	21B24	1B	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	BE	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	S000
Stampede Pass	21810P	2S	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3S00
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A2Ba	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A1Ba	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	1B	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4S00
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	S100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	2388	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW


WASHINGTON SNOW COVER
Snow equivalent compared
to average 15 years (1958-72)
1978
SCALE IN MILES
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
WATER CONTENT OF SNOW
percent of 15 year average
for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
CANADA
OREGON
PACIFIC OCEAN
STRAIT OF GEORGIA
STRAIT OF JUAN DE FUCA
SAN JUAN
ISLAND
WHATCOM
SKAGIT
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
SKAMANIA
KLICKITAT
YAKIMA
KITTITAS
CHELAN
OKANOGAN
FERRY
STEVENS
PEND OREILLE
SPOKANE
LINCOLN
DOUGLAS
GRANT
ADAMS
WHITMAN
FRANKLIN
BENTON
WALLA WALLA
COLUMBIA
GARFIELD
ASOTIN
COLUMBIA RIVER RES
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Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Wenatchee River (continued)					
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	2184P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21849a	12	23N	13E	3021
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	2001	21	6N	17E	4030
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	1S	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250
PUGET SOUND DRAINAGE					
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21831	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B4B	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skogit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A1S	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A2SSP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYS TM EXAMPLE

21A7 Snow Course Only
21A7a Aerial Marker Only
21A7A Snow Course and Aerial Marker
21A7M Snow Course and Soil Moisture Station
21A7m Soil Moisture Station
21A7P Snow Course and Precipitation Storage Gage
21A7p Precipitation Storage Gage
21A7SP Snow Pillow

WATER SUPPLY OUTLOOK

State of Washington

February 1, 1978

A dramatic turn around has occurred from the drought conditions of last year. Although not all watersheds have adequate snow cover, forecasted water supplies are all for within near normal amounts. Heavy rains in December depleted much of the snow that occurred prior to that date and this snow pack never fully recovered. Well above normal snow packs have occurred only at a few isolated low elevation type watersheds on the east side of the Cascades. While the remaining east side watersheds have normal or above snow packs, the west and southwest watersheds all have below normal snow packs as of February 1. The poorest snow covers are in the Lewis River Drainage and the Elwha Drainage on the Olympic Peninsula.

SNOW COVER

The well above normal snow cover that was generally experienced last month has not continued. This has been a result of lack of input in the high mountain watersheds. Precipitation has generally been occurring in the form of rain and this has not changed, as it normally does with elevation, to snow in the higher watersheds. East of the Cascades, only the Spokane River Drainage has below normal snow packs while the other drainages all have normal to above normal conditions as of February 1. In the Lower Columbia Drainages, the watersheds have well below normal snow cover as of this time. On the west side, drainages are more nearly normal with only the Skagit and Skykomish indicating above normal snow covers and, as previously stated, on the Olympic Peninsula, the Elwha Drainage is 46 percent below normal. Comparisons with last year are made in the tabulation following the forecasts. These comparisons are ridiculously high but, again, the snow pack last year was ridiculously low.

RESERVOIRS

The amount of water stored in both irrigation and power reservoirs varies considerably from excellent to poor. The five irrigation reservoirs in the Yakima Drainage have excellent amounts of water in storage and with anticipated runoff and controls should cause no problem with the water users below. The two small reservoirs in the Okanogan Drainage in Washington are not as fortunate. Continued above normal precipitation and favorable melt conditions will have to occur for these reservoirs to comfortably fill this spring. Power reservoirs are also variable, with only Ross Reservoir in the Skagit Drainage indicating above normal amounts of water in storage. Forecasted flows to these reservoirs indicate there should be no problem in filling during the spring runoff period.

PRECIPITATION

As reported by the National Weather Service, rainfall was below normal in all drainage divisions, with the exception of the central Washington area, during the month of January. This poor rainfall was not sufficient to overcome the above normal conditions that have occurred from November to this date. Only the Columbia above Castlegar has a November through January winter precipitation that still is below normal. During the fall period, precipitation was highly variable by watersheds. September rainfall was well above normal - October well below, for a September-October period that was near normal in most cases.

STREAMFLOW

During January, all streamflow was reported to be subnormal with the exception of one low elevation stream in the Lower Columbia Drainage. The lack of precipitation previously mentioned is the main reason for this low streamflow and localized storms increased the flow of the Klickitat River at Pitt to its above normal stage. The main stem of the Columbia had a flow that ranged from 86 percent of normal at Birchbank to 93 percent of normal at The Dalles. Flow of the Yakima River, as measured at Kiona, was 94 percent of normal. The lowest flow occurred in the Green River, as measured below Howard Hanson Dam. During January the flow of this stream was only 39 percent of normal. Forecasts of snow melt streamflow are for generally near normal amounts and range from 82 percent of normal for the Dungeness River near Sequim to a high of 19 percent above normal for the Entiat River near Ardenvoir. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - FEBRUARY, 1978

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1977 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet: % 15-Yr. Avg.	Forecast period	1977	1976	1975	15-Yr. Average 58-72
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM **							
Columbia River at Birchbank 1/	42900	92	Apr-Sept	31583	53937	41101	46410
	34700	92	Apr-July	23839	38979	32944	37548
	25350	92	Apr-June	18040	26054	22429	27549
Columbia River at Grand Coulee 1/	67200	97	Apr-Sept	41805	80974	66501	69020
	56900	97	Apr-July	32813	62715	55870	58368
	44700	97	Apr-June	26413	46556	41377	46049
Columbia River bl. Rock Island Dam 1/	74900	99	Apr-Sept	43659	86849	73553	75290
	63800	99	Apr-July	34392	67890	62727	64181
	50100	99	Apr-June	27740	50520	46759	50594
Columbia River at The Dalles, Or 1/	108000	103	Apr-Sept	54130	122876	108901	104600
	93000	104	Apr-July	42939	99965	94195	89875
	76100	104	Apr-June	35577	79164	73012	73143
PEND OREILLE RIVER SYSTEM **							
Pend Oreille River bl. Box Canyon	16900	106	Apr-Sept	6041	17638	16946	15950
	15600	106	Apr-July	5312	15979	15271	14677
	13500	106	Apr-June	4816	13687	11814	12767
KETTLE RIVER SYSTEM							
Kettle River nr. Laurier	1960	104	Apr-Sept	1154	2434	1860	1873
	1840	102	Apr-July	1114	2112	1779	1794
	1675	102	Apr-June	1045	1826	1592	1640
Colville River at Kettle Falls	165	111	Apr-Sept		123	225	148
	155	113	Apr-July		106	203	137
	145	113	Apr-June		98	187	128

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr Average 58-72
SPOKANE RIVER SYSTEM***							
Spokane River at Post Falls, ID 2/	2850	95	Apr-Sept	1066	3215	3418	2982
	2760	95	Apr-July	1014	3069	3275	2899
	2620	95	Apr-June	960	2884	3033	2773
OKANOGAN RIVER SYSTEM **							
Similkameen River nr. Nighthawk	1770	117	Apr-Sept	641	1944	1434	1516
	1660	117	Apr-July	598	1720	1339	1424
	1430	117	Apr-June	541	1347	1092	1222
Okanogan River nr. Tonasket	1950	113	Apr-Sept	705	2185	1582	1723
	1790	113	Apr-July	643	1836	1437	1582
	1525	113	Apr-June	582	1382	1181	1349
METHOW RIVER SYSTEM **							
Methow River nr. Pateros	1200	116	Apr-Sept		1205	992	1031
	1120	116	Apr-July		1047	911	963
	965	116	Apr-June		802	728	832
CHELAN RIVER SYSTEM							
Chelan River at Chelan 3/	1470	117	Apr-Sept	589	1466	1364	1253
	1320	118	Apr-July	474	1184	1210	1112
	1070	121	Apr-June	397	836	858	881
Stehekin River at Stehekin	1025	113	Apr-Sept		1010	1040	904
	890	115	Apr-July		787	796	776
	695	116	Apr-June		523	526	600
Entiat nr. Ardenvoir	285	119	Apr-Sept		310	268	239
	265	120	Apr-July		266	244	220
	220	122	Apr-June		190	182	180
WENATCHEE RIVER SYSTEM							
Wenatchee River at Plain	1455	111	Apr-Sept		1510	1396	1312
	1325	112	Apr-July		1263	1262	1187
	1130	118	Apr-June		891	924	956
Wenatchee River at Peshastin	2000	112	Apr-Sept	855	2074	1920	1786
	1875	115	Apr-July	744	1746	1738	1629
	1535	116	Apr-June	662	1238	1279	1324
Stemilt Basin nr. Wenatchee	140*	101	May-Sept		144*	134*	138*
Icicle Creek nr. Leavenworth	440	119	Apr-Sept				371
	395	116	Apr-July				342
	335	120	Apr-June				279

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

*** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore cast period	1977	1976	1975	15-Yr. Average 58-72
			Seasonal Streamflow in Thousands of Acre-Feet				
YAKIMA RIVER SYSTEM							
Yakima River	130	92	Apr-Sept	80	157	168	142
nr. Martin 4/	118	90	Apr-July	70	141	154	131
	110	95	Apr-June	67	117	127	116
Yakima River	910	94	Apr-Sept		1091	1112	968
at Cle Elum 5/	805	92	Apr-July		980	1012	877
	722	95	Apr-June		807	852	764
Yakima River	1780	103	Apr-Sept		1278	2229	1730
nr. Parker 6/	1770	104	Apr-July		2006	2141	1701
	1650	104	Apr-June		1702	1859	1580
Kachess River	116	93	Apr-Sept	60	142	154	125
nr. Easton 7/	106	90	Apr-July	55	131	145	118
	101	95	Apr-June	54	109	120	106
Cle Elum River	467	98	Apr-Sept	248	561	539	477
nr. Roslyn 8/	425	97	Apr-July	211	484	492	437
	375	101	Apr-June	192	370	388	372
Bumping River	147	101	Apr-Sept	65	175	179	146
nr. Nile 9/	137	102	Apr-July	60	152	163	134
	110	98	Apr-June	55	109	119	112
American River	132	103	Apr-Sept		132	149	128
nr. Nile	125	106	Apr-July		116	137	118
	105	105	Apr-June		86	104	100
Tieton River	260	105	Apr-Sept	123	302	299	247
at Tieton Dam 10/	210	100	Apr-July	94	242	253	211
	175	102	Apr-June	77	179	187	172
Naches River	925	104	Apr-Sept		1046	1054	889
nr. Naches 11/	835	103	Apr-July		908	952	810
	695	100	Apr-June		717	761	698
Ahtanum Creek	53	110	Apr-Sept		51	57	48
nr. Tampico 12/	48	110	Apr-July		45	51	44
	42	108	Apr-June		37	44	39

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes. and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Forecast period	1977	1976	1975	15-Yr. Average 58-72
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	25	93	Apr-Sept		41	39	27
nr. Walla Walla	22	92	Apr-July		36	34	24
	19	90	Apr-June		32	30	21
Lewis River	1220	92	Apr-Sept	1040	1285	1188	1319
at Ariel 13/	1065	93	Apr-July	831	1130	1022	1151
	950	92	Apr-June	761	990	885	1028
Cowlitz River **	2200	105	Apr-Sept	1587	2296	2127	2101
bl. Mayfield Dam	1950	106	Apr-July		1963	1852	1846
	1650	105	Apr-June		1584	1451	1578
Cowlitz River **	2855	103	Apr-Sept	2172	2924	2646	2773
at Castle Rock 14/	2550	106	Apr-July	1778	2493	2278	2416
	2150	103	Apr-June	1603	2063	1816	2083
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	135	82	Apr-Sept		160	149	165
nr. Sequim	115	84	Apr-July		128	118	137
	85	82	Apr-June		91	82	104
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River at Newhalem 15/	2540	105	Mar-Aug		2841	2339	2418

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about February 1, 1978 as percent of the same date in 1977 and 1976 and average of record.

Tributary Basin	No. of Courses Average	1978 Snow Water Expressed as percent of 1977	1976	1958-72 Avg.
UPPER COLUMBIA BASIN				
Pend Oreille	8	441	169	106
Kettle	15	309	124	111
Colville	5	934	195	102
Spokane	4	286	111	92
Okanogan	30	616	119	117
Methow	6	1946	143	106
Chelan	1	488	97	127
Entiat	11	1347	106	139
Wenatchee	9	820	120	112
Yakima	24	1005	130	109
Ahtanum	2	1204	256	137
LOWER COLUMBIA				
Mill Creek	3	421	59	62
Klickitat	1	-	383	79
White Salmon	2	668	107	74
Lewis	16	894	72	47
Cowlitz	3	1016	110	85
PUGET SOUND				
White	3	878	95	96
Green	8	960	58	63
Snoqualmie	1	2900	72	71
Skykomish	2	942	98	107
Skagit	12	805	88	117
Nooksack	1	640	100	-
Baker	6	472	94	98
OLYMPIC PENINSULA				
Morse	1	-	90	-
Elwha	1	-	74	54
Dungeness	1	-	-	-

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (February) 1978	1977	1976	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	134.7	21.7	169.1	138.4
Columbia	Franklin D. Roosevelt Lake	5232.0	3149.2	4172.0	5116.0	3766.0
Columbia	Banks Lake	714.9	714.9	704.2	712.2	566.9
Okanogan	Conconully Reservoir	13.0	2.9	8.0	10.0	10.8
Okanogan	Salmon Lake	10.5	6.0	9.6	9.8	7.6
Chelan	Lake Chelan	676.1	274.6	258.2	513.5	295.9
		YAKIMA				
Yakima	Keechelus Lake	157.8	139.5	65.6	118.3	96.1
Kachess	Kachess Lake	239.0	188.1	192.4	206.8	175.7
Cle Elum	Lake Cle Elum	436.9	248.7	382.0	308.4	232.9
Bumping	Bumping Lake	33.7	24.5	4.4	11.4	8.3
Tieton	Rimrock Lake	198.0	135.2	128.1	140.0	110.6
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1001.8	769.7	1258.7	582.1
Skagit	Diablo Reservoir	90.6	85.2	83.5	88.0	84.4
Skagit	Gorge Reservoir	9.8	8.2	8.4	8.3	-

1/ Based on Active Storage

* 15-year Average 1958-72

SOIL MOISTURE - FEBRUARY

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content Inches as of Feb. 1 1978	1977	1976
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	-	Frozen	3.6
Trout Creek	3-M	3600	48	7.3	3.5	3.3	4.8
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	8.0	-	-
Helmers	17C2M	4400	48	12.0	9.8	-	-
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	9.9	6.8	11.6

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1977	1976	1975
OKANOGAN							
Salmon Meadows	19A02M	4500	48	5.4	-	3.4	3.2
Trout Creek	3-M	3600	48	7.3	3.2	3.4	3.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	-	-	7.3
Helmers	17C2M	4400	48	12.0	-	-	6.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.6	-	8.6

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct Observed	1977 2/ Departure	WINTER Nov-Dec 1977 Observed	Jan 1978 2/ Departure
Columbia in Canada	3.41	-1.61	10.09	-1.04
Pend Oreille - Spokane	4.10	+0.06	13.46	+1.28
Northeastern Washington	2.06	-0.41	7.70	+0.99
Southeastern Washington	2.51	0.0	8.36	+1.30
Central Washington	1.08	+0.11	5.41	+1.66
North Central Washington	1.39	-0.21	5.98	+1.14
Northwest Slope Cascades	11.16	-2.05	42.06	+4.13
Southwest Slope Cascades	9.42	+0.74	32.36	+3.45

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

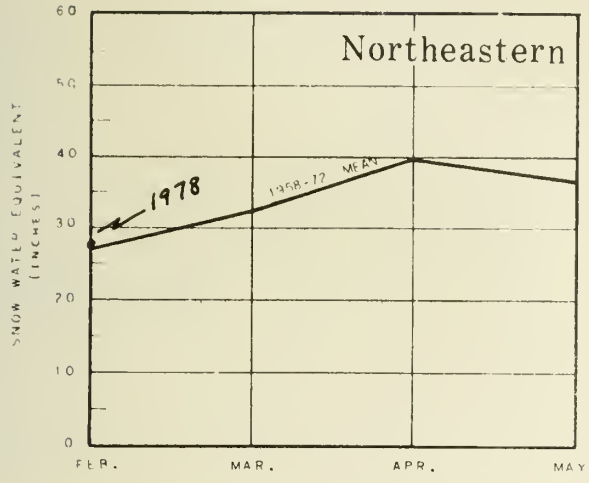
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

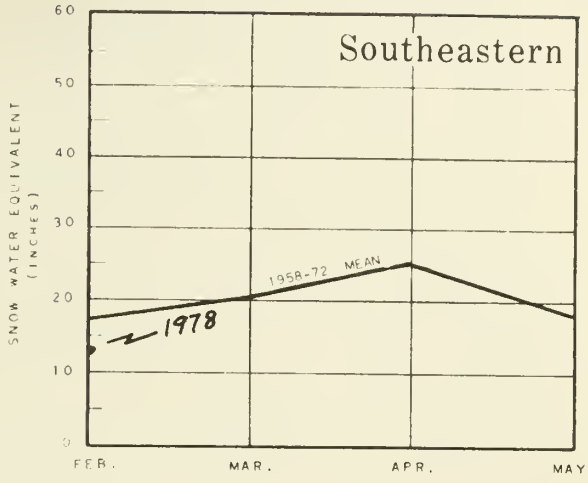
2/ - Departure from 15-year (1958-72) drainage division average.

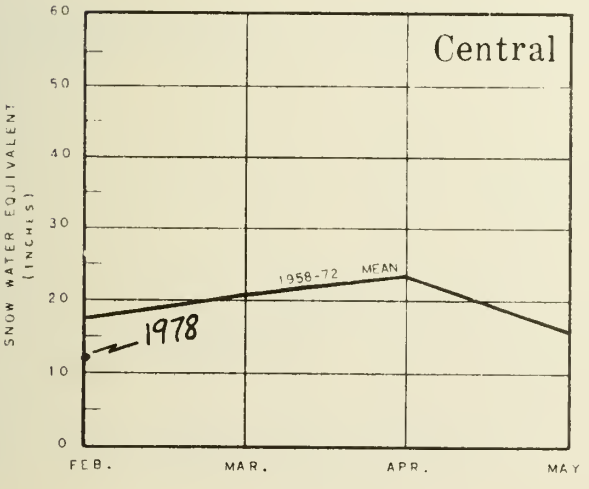
WASHINGTON SNOW COVER

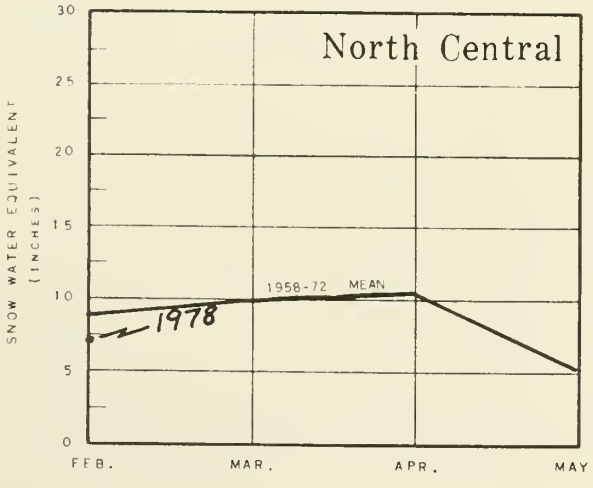
1978

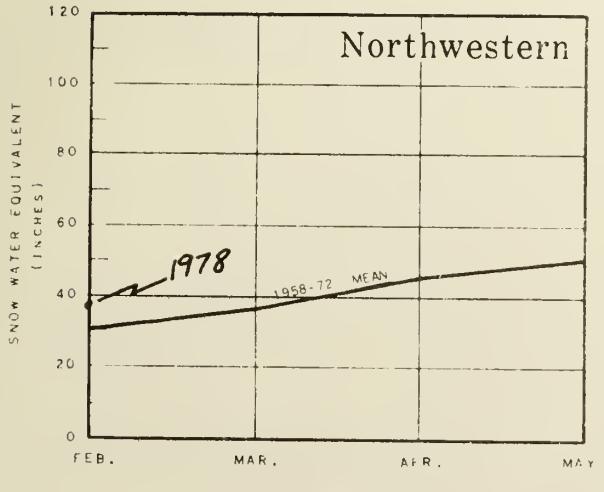
DRAINAGE AREAS

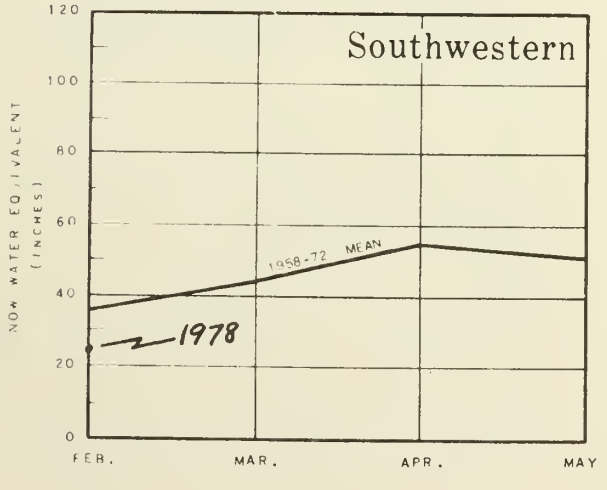








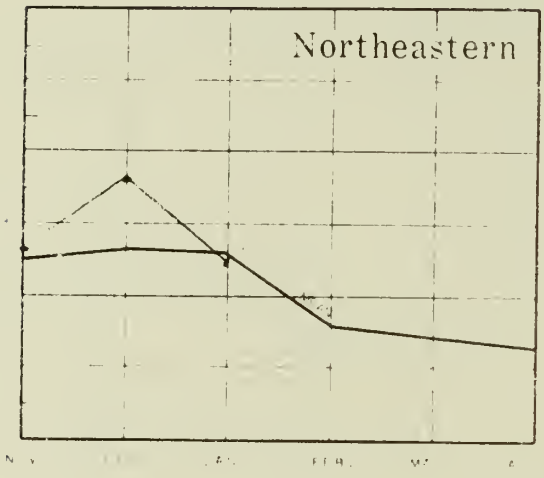


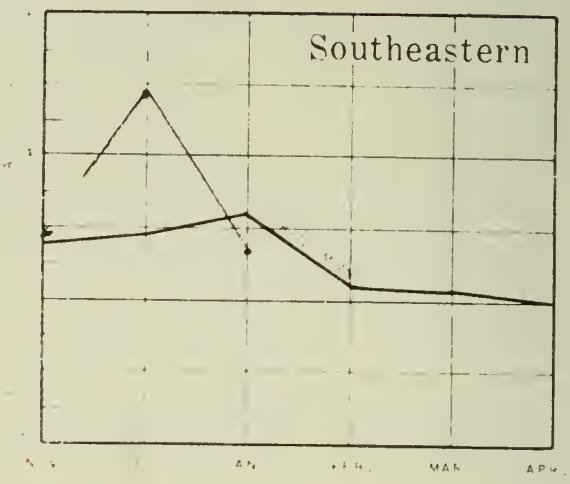


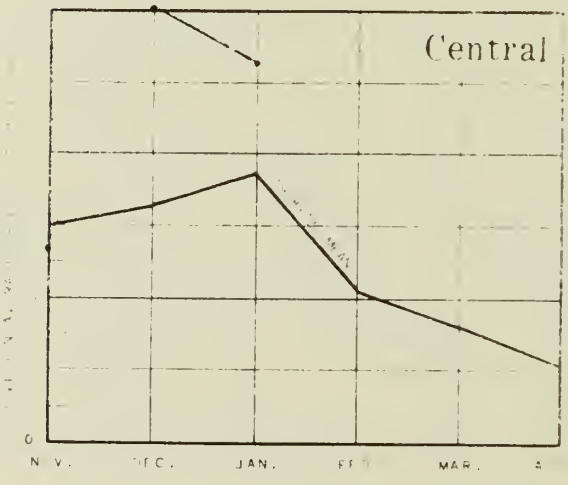
WASHINGTON VALLEY PRECIPITATION

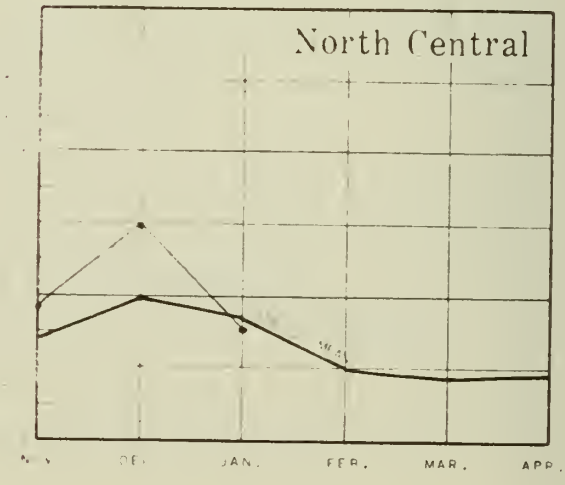
1977 - 1978

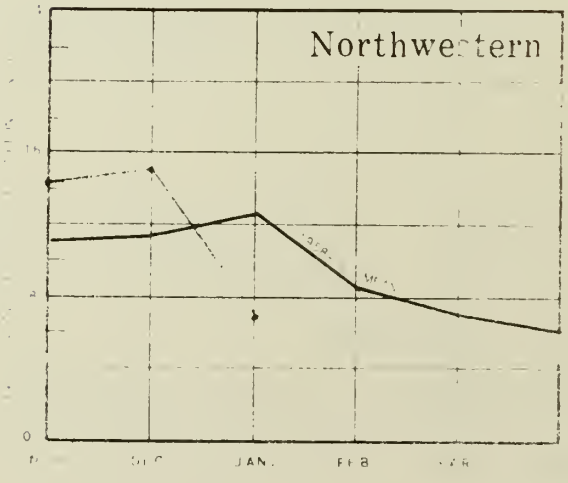
DRAINAGE AREAS

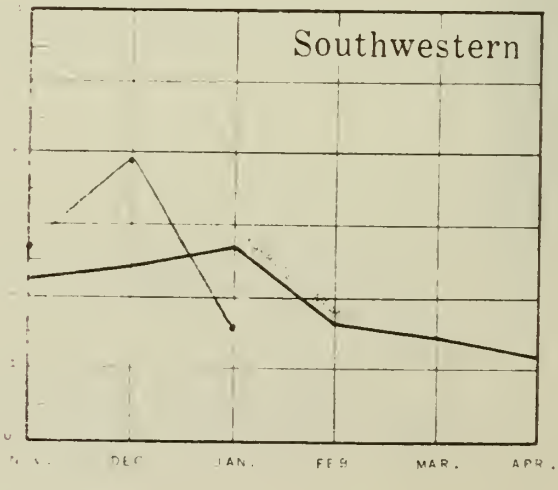












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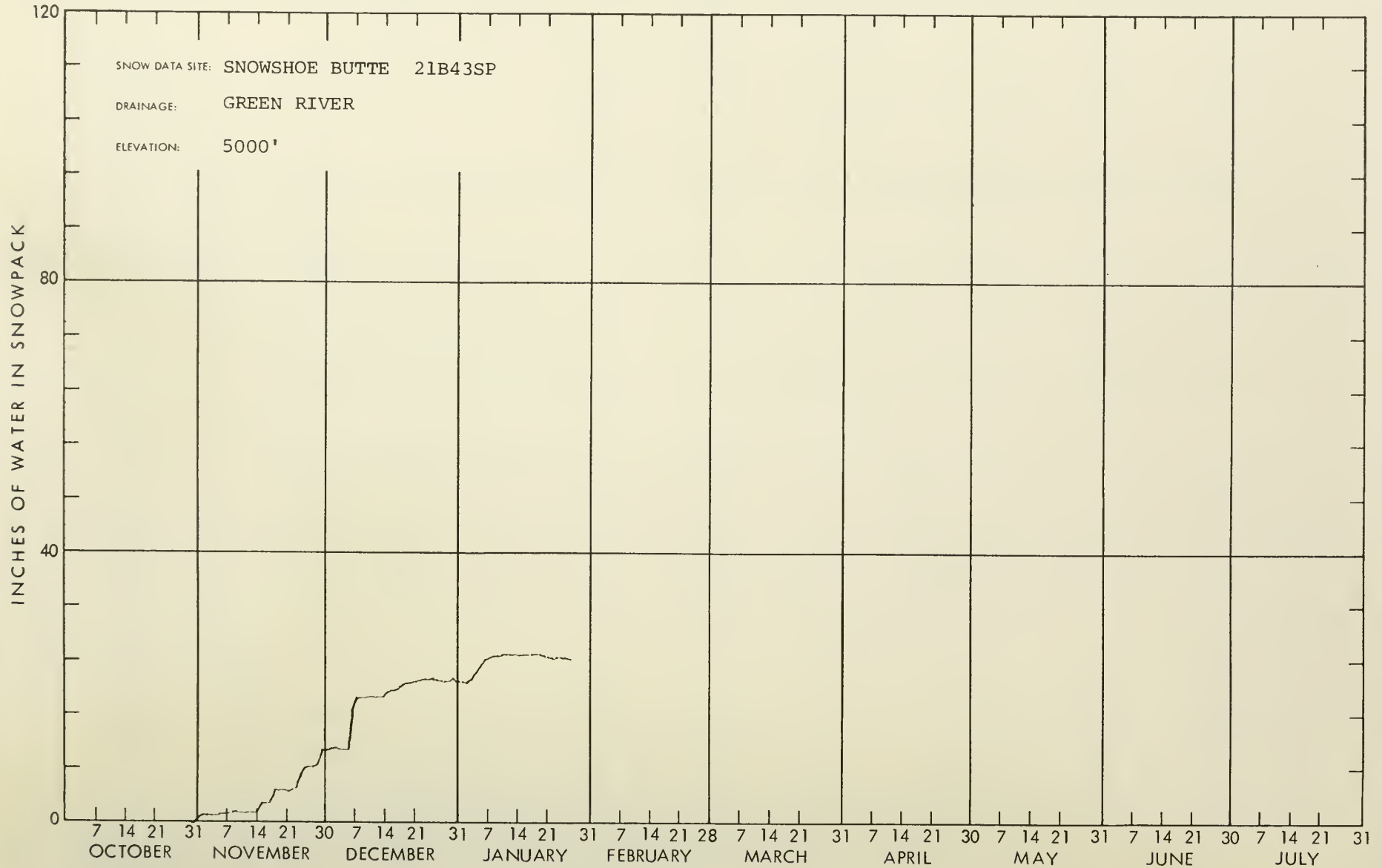
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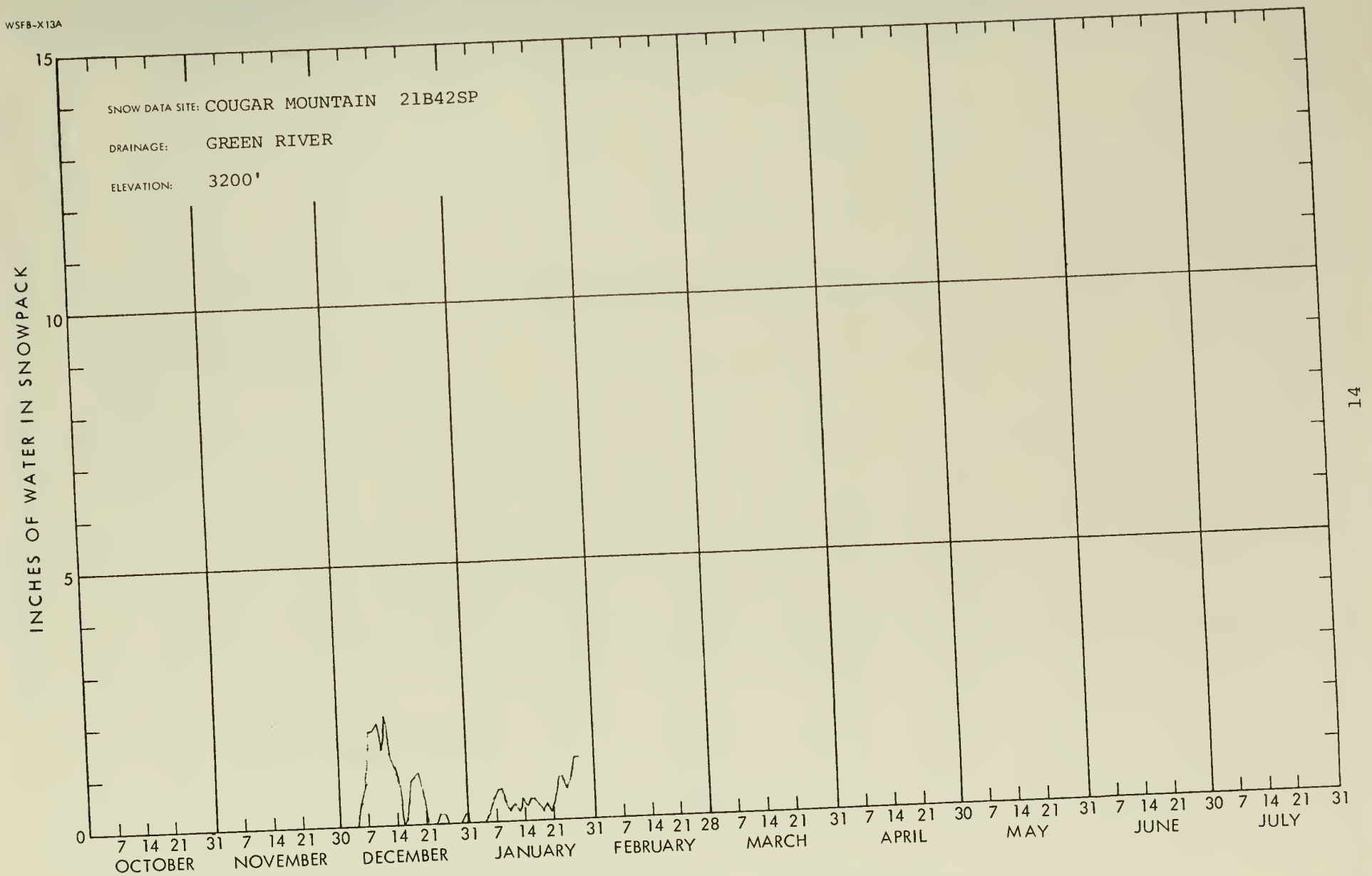
DRAINAGE: GREEN RIVER
ELEVATION: 5000'
INCHES OF WATER IN SNOWPACK
120
80
40
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY

WSFB-X13A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DRAINAGE: GREEN RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
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7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Benton Meadow	16A02	2344	1/3	23	5.4	1.5	3.5
			1/30	24	6.3	1.7	6.0
Benton Spring	16A03	4900	1/3	40	12.1	2.4	8.4
			1/30	50	15.8	3.2	13.8
Chewelah	17A04	4925	1/28	45	13.2	2.0	13.0
Lookout	15B02	5250	12/28	62	22.0	4.8	15.6
			1/30	84	27.5	7.0	26.7
Nelson	19-Can	3050	12/30	35	8.6	2.6	7.5*
			1/31	46	11.7	3.1	11.2*
Schweitzer Bowl	16A06	4500	12/29	57	18.7	5.0	-
			2/1	78	25.5	7.0	22.6
Schweitzer Ridge	16A05	6100	12/29	78	26.2	5.8	-
			2/1	107	39.4	9.8	32.1
Winchester Creek	17A03	2970	1/27	32	8.0	1.7	9.7
KETTLE RIVER							
Barnes Creek	90-Can	5300	1/30	48	14.7	10.0	14.0*
Big White Mtn.	154-Can	5500	2/1	50	13.1	7.2	14.1*
Boulder Road	18A02	1450	12/27	9.2	2.4	0.9	2.7
			1/25	17	4.8	1.5	4.6
Butte Creek	18A03	4070	12/27	22	5.4	1.5	4.7
			1/25	33	8.6	2.4	7.4
Cabin Creek	18A08	3170	12/27	16	4.2	1.3	4.4
			1/25	27	6.8	1.7	6.5
Carmi	126-Can	4100	2/1	28	6.6	2.2	5.3*
Farron # 1	17-Can	4000	1/30	41	10.8	2.5	9.6*
Farron # 2	243-Can	4000	1/30	44	12.3	2.5	8.2*
Goat Creek	18A04	3595	12/27	17	4.4	1.3	4.1
			1/25	27	7.3	2.0	6.2
Monashee Pass	48A-Can	4500	1/9	38	10.1	4.2	6.8*
			1/30	38	11.4	6.8	9.6*
Snow Caps Creek	18A05	2150	12/27	9	2.4	1.0	3.0
			1/25	20	5.3	1.5	4.8
Snow Caps Trail	18A06	2720	12/27	12	3.1	1.1	3.5
			1/25	24	5.9	1.5	5.5
Summit G.S.	18A07	4600	12/27	19	4.5	1.1	3.8
			1/25	28	5.7	1.6	5.9
Trapping Creek Lower	166-Can	3050	2/1	25	5.0	2.2	4.4*
Trapping Creek Upper	165-Can	4450	2/1	34	6.2	4.4	7.4*

\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

WSFB-X4-L

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	THIS YEAR: Snow Depth (Inches)	THIS YEAR: Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	PAST RECORD: Water Content (inches) Average #
COLVILLE RIVER							
Baird	17A06	3215	1/29	29	8.6	2.4	6.1
Carlson	18A09	2885	1/28	18	4.1	0.6	4.5
Chewelah	17A04	4925	1/28	45	13.2	2.0	13.0
Stranger Mountain	17A05	5990	1/28	37	10.3	0.8	11.0
Togo	18A10	3370	1/28	31	8.4	0.5	10.1
SPOKANE RIVER							
Above Burke	15B08	4100	12/28	40	10.5	5.3	-
			1/30	54	16.1	7.0	-
4th of July Summit	16B03	3100	12/28	14	2.9	0.0	4.1
			1/31	29	7.1	2.3	6.8
Lookout	15B02	5250	12/28	62	22.0	4.8	15.6
			1/30	84	27.5	7.0	26.4
Sherwin	16C01	3200	12/30	28	5.8	1.9	-
			1/27	28	7.6	3.6	11.0
Mosquito Ridge	16A04	5110	2/6	93	30.6	-	-
OKANOGAN RIVER							
Aberdeen Lake	6A-Can	4300	1/31	29	7.6	2.7	5.0*
Blackwall Peak	100-Can	6250	1/7	73	23.5	4.6	13.7*
			2/1	Late Report		7.3	24.6*
Brenda Mine	193-Can	4800	12/29	37	10.0	2.4	6.2*
			1/30	43	11.9	3.3	9.7*
Brookmere	27-Can	3200	12/31	23	5.1	1.3	1.3*
			1/30	33	7.9	2.3	7.1*
Carrs Landing Upper	168-Can	3200	12/29	21	3.8	0.5	2.1*
			1/30	24	5.6	1.6	3.8*
Clark +	19A08a	7000	2/1	Not Measured		-	-
Dollar Watch +	20A29a	7000	2/1	Not Measured		6.0	19.4
Enderby	130-Can	6250	12/30	79	24.2	11.5	11.5*
			1/27	90	29.6	14.6	25.3*
Freezeout Meadows New	20A38	5000	1/27	62	20.9	7.4	New
Hamilton Hill	107-Can	4900	1/30	46	15.4	4.1	10.3*
Harts Pass	20A05A	6500	1/28	96	37.1	9.7	32.7
Horseshoe Basin +	19A05a	7000				-	9.7
Isontok Lake	152-Can	6300	12/30	27	6.9	1.4	4.0*
			1/28	32	8.5	1.7	6.2*
Lost Horse Mtn.	105-Can	6300	2/1	Late Report		3.3	6.9*
Loup Loup	19A07	4650	1/30	31	8.5	0.4	7.6
McCulloch	4-Can	4200	12/30	24	5.0	1.1	3.2*
			1/28	28	6.5	2.5	4.9*
Missezula Mtn.	106-Can	5100	1/29	37	10.2	2.4	6.8*
Mission Creek	5A-Can	6000	12/28	39	11.9	5.3	9.2*
			1/31	48	15.3	7.7	13.8*

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
OKANOGAN RIVER (Cont.)							
Monashee Pass	48A-Can	4500	1/9	38	10.1	4.2	6.8*
			1/30	38	11.4	6.8	9.6*
Mount Kobau	156-Can	5950	12/29	24	5.9	1.1	1.1*
			1/30	30	7.7	1.7	9.9*
Muckamuck +	19A09a	6390	2/4	52	15.1	0.0	-
Mutton Creek No. 1	19A01	5700	1/26	41	11.1	0.0	10.4
Mutton Creek No. 2	19A04	6000	1/26	34	10.5	0.5	10.9
Mutton Creek No. 2 SP	19A11SP	6000	1/26	-	10.1	-	New
New Copper Mtn.	46A-Can	4300	1/28	23	4.7	1.1	5.4*
New Penticton Res.#2	183-Can	5225	1/31	30	6.4	3.2	7.3*
Oyama Lake	203-Can	4400	1/30	28	7.4	2.6	5.5*
Paysayten +	20A28a	4300	2/3	32	12.5	3.6	13.0
Postill Lake	55-Can	4500	1/31	28	6.9	3.6	5.9*
Rusty Creek	19A03	4000	1/27	28	6.6	0.2	5.9
Salmon Meadows	19A02	4500	1/27	32	7.3	0.4	7.8
Silver Star Mountain	99-Can	6050	12/31	63	20.4	6.4	14.3*
			1/29	71	24.8	9.0	19.3*
Starvation Mountain +	19A10a	6750	2/1	Not Measured		0.0	-
Summerland Reservoir	3A-Can	4200	12/31	28	7.0	1.9	4.9*
			1/29	37	9.4	2.5	7.6*
Touts Coulee	19A06	2845	1/30	16	3.1	0.5	3.4
Trout Creek	3-Can	4700	1/28	28	7.4	2.4	5.2*
Vaseux Creek	233-Can	4600	12/31	18	3.0	1.4	2.5*
			1/30	24	5.0	2.2	5.1*
White Rocks Mtn.	70-Can	6000	1/5	54	17.6	-	-
			1/31	62	21.8	5.3	18.7*
METHOW RIVER							
Billy Goat Pass +	21A10a	6409	2/1	Not Measured		6.0	20.8
Dollar Watch +	20A29a	7000	2/1	Not Measured		6.0	19.4
Harts Pass	20A05A	6500	1/28	96	37.1	9.7	32.7
Horseshoe Basin +	19A05A	7000	2/1	Not Measured		-	9.7
Loup Loup	19A07	4650	1/30	31	8.5	0.4	7.6
Mutton Creek No. 1	19A01	5700	1/26	41	11.1	0.0	10.4
Mutton Creek No. 2	19A04	6000	1/26	34	10.5	0.5	10.9
Rusty Creek	19A03	4000	1/27	28	6.6	0.2	5.9
Salmon Meadows	19A02	4500	1/27	32	7.3	0.4	7.8
War Creek Pass +	20A31a	6500	2/1	Not Measured		-	-

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1958-72 average
* Average for years of record

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	2/3	92	35.9	5.6	29.0
Little Meadows +	20A24a	5275	2/3	115	42.6	6.3	32.2
Lyman Lake +	20A23A	5900	2/3	144	53.3	14.8	42.1
Park Creek Flat +	20A13a	2220	2/1	Not Measured		-	27.3
Park Creek Ridge	20A12A	4600	2/3	128	44.8	7.0	34.1
Petersons +	20A16a	3730	2/1	Not Measured		-	25.1
Rainy Pass	20A09	4780	1/28	101	37.6	7.7	29.5
Safety Harbor +	20A30a	6300	2/1	Not Measured		1.8	-
War Creek Pass +	20A31a	6500	2/1	Not Measured		-	-
ENTIAT RIVER							
Blue Creek G.S. +	20B28a	5425	1/26	126	34.0	-	-
Brief	20B19	1600	1/28	26	9.1	1.0	6.8
Entiat Meadows +	20A33a	4540	1/26	118	31.9	-	-
Entiat River Trail +	20A34a	3325	1/26	86	27.5	-	-
Four Mile Ridge +	20B27a	6800	1/26	100	27.0	-	-
Fox Camp +	20A36a	6510	1/26	152	41.0	-	-
Pope Ridge	20B20	3450	1/31	64	20.2	1.0	14.0
Pugh Ridge +	20A32a	6725	1/26	97	26.2	-	-
Shady Pass	20A37	6200	1/30	111	30.0	2.7	-
Snow Brushy +	20A35a	3910	1/26	113	36.2	-	-
Tommy Creek +	20B21a	4900	1/26	76	20.5	-	-
WENATCHEE RIVER							
Berne-Mill Creek	21B23	3170	12/1	29	8.9	-	4.1
			12/14	48	16.8	-	7.6
			12/28	48	17.2	1.8	11.2
			1/11	74	24.4	2.2	16.8
			1/31	69	27.2	2.2	21.4
Berne-Mill Creek New	21B41SP	3240	12/1	26	8.6	-	-
			12/28	34	12.4	1.6	9.9
			1/31	58	20.8	0.0	18.7
Blewett Pass No. 2	20B02	4270	12/28	26	8.5	0.0	6.7
			1/27	45	14.3	0.0	13.0
Chiwaukum G.S.	20B16	1810	12/2	12	3.4	-	1.5
			12/14	24	6.4	-	3.2
			12/28	23	7.1	1.0	5.1
			1/11	32	8.9	1.1	7.8
			1/30	31	9.6	2.0	9.9
Lake Wenatchee	20B05	1970	12/1	24	7.2	-	1.5
			12/15	35	11.9	-	3.9
			12/28	32	12.4	1.9	6.1
			1/11	49	15.5	2.4	9.6
			1/30	44	15.4	2.4	12.1

\+ Snow water equivalent estimated from aerial stadia observation

\# Average based on 1958-72 average

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	Average #
WENATCHEE RIVER (Cont.)							
Leavenworth R.S.	20B17	1127	10/26	0	0.0	-	0.0
			11/10	0	0.0	-	0.0
			11/25	1.9	0.5	-	0.8
			12/12	8.6	2.0	-	1.8
			12/27	6.0	2.2	0.5	3.4
			1/13	14	4.9	1.1	4.7
			1/27	13	5.8	0.8	6.0
Lyman Lake +	20A23A	5900	2/3	144	53.3	14.8	42.1
Merritt	20B18	2140	12/2	17	5.8	-	2.3
			12/14	39	12.0	-	4.9
			12/28	37	12.8	1.8	7.9
			1/11	54	16.6	2.0	11.7
			1/30	45	17.0	2.2	14.5
Stevens Pass	21B01	4070	11/17	52	10.5	-	3.6
			12/2	44	15.9	1.0	8.9
			12/13	78	29.0	2.3	14.7
			12/28	75	29.2	5.7	21.7
			1/11	103	37.7	6.9	29.0
			1/30	102	39.5	6.3	37.0
Stevens Pass Sand Shed	21B45	3700	12/2	31	11.0	-	-
			12/14	59	19.5	-	-
			12/28	58	21.9	2.9	-
			1/11	80	28.8	3.3	-
			1/30	76	28.9	2.3	-
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	1/30	41	12.1	0.0	-
Colockum Creek Lower	20B23	4300	1/30	36	9.8	0.0	-
Trough # 2	20B25SP	5310	1/30	46	13.5	0.0	-
SQUILCHUCK CREEK							
Beehive Springs	20B03	4400	1/27	34	9.6	0.0	6.6
Scout-A-Vista	20B04	3400	1/27	34	9.7	0.0	6.5
STEMILT CREEK							
Jump-Off	20B08	4450	1/30	37	10.2	0.0	6.7
Stemilt Slide	20B06	5000	1/27	50	14.3	0.0	12.4
Upper Wheeler	20B07	4400	1/27	35	10.6	0.0	8.3

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1958-72 average

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SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (inches)	Water Content (inches)	Last Year	Average #
YAKIMA RIVER							
Ahtanum R.S.	21C11	3100	12/28	7.4	1.9	0.0	3.1
			1/25	31	8.6	0.0	6.3
Blewett Pass No. 2	20B02	4270	12/28	26	8.5	0.0	6.7
			1/27	45	14.3	0.0	13.0
Bumping Lake Old	21C08	3450	1/7	36	7.2	0.0	7.1
			1/14	39	8.1	-	10.4
			1/26	37	10.1	0.0	13.2
Bumping Lake New	21C36	3400	12/14	15	5.1	-	5.8
			1/7	43	9.8	0.0	8.7
			1/14	45	11.9	-	13.0
			1/26	44	12.8	0.0	18.3
Cayuse Pass	21C06	5300	12/31	99	39.1	4.3	33.2
			1/27	130	52.7	7.9	58.7
Colockum Pass	20B09	5370	1/27	53	18.4	0.0	11.2
Cooke Creek	20B10	4123	1/27	Trace	0.0	0.0	7.2
Corral Pass	21B13	6000	1/27	73	26.8	4.2	-
Green Lake	21C10	6000	1/24	80	27.7	2.3	-
Grouse Camp	20B11	5385	1/26	50	16.7	0.0	12.1
High Creek	20B12	2930	1/26	16	5.1	0.0	4.9
Joe Lake +	21B46a	4624	1/23	123	49.2	13.4	-
Lake Cle Elum	21B14M	2200	12/9	18	4.0	0.0	1.1
			12/16	13	3.9	-	2.2
			1/4	24	5.4	0.4	4.2
			1/12	21	5.6	0.8	6.5
			1/27	19	6.2	0.0	8.2
Lemah Creek +	21B47a	3327	1/23	87	34.8	6.1	-
Manashtash	20C01	3935	1/30	25	6.9	0.0	3.9
Morse Lake	21C17	5400	1/30	108	39.9	3.0	39.4
Nanum	20B13	3875	1/26	23	6.8	0.0	7.8
Olallie Meadows	21B02	3625	1/27	60	23.2	0.8	32.7
Satus Pass	20D01	4030	1/30	25	6.9	0.0	8.7
Stampede Pass SP	21B10	3860	12/2	30	13.0	-	6.3
			12/15	59	22.5	-	11.9
			1/3	65	27.6	3.6	16.5
			1/16	75	33.5	4.2	22.0
			1/30	80	34.0	2.0	28.7
Trail Creek	20B14	3360	1/27	13	4.1	0.0	2.3
Tunnel Avenue	21B08	2450	11/21	12	3.0	-	0.0
			12/5	17	3.4	0.0	2.7
			12/14	24	7.4	-	6.4
			1/3	35	9.5	1.0	9.2
			1/13	42	11.7	2.6	11.3
			1/26	40	12.3	1.2	17.6
Van Epps Pass +	20B26a	5925	1/23	110	44.0	10.3	-

\+ Snow water equivalent estimated from aerial stadia observation

\# Average based on 1958-72 average

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SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	THIS YEAR: Snow Depth (Inches)	THIS YEAR: Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	PAST RECORD: Water Content (inches) Average #
YAKIMA RIVER (Cont.)							
Walters Flat	20B15	3360	1/26	20	6.0	0.0	6.3
Waptus Lake +	21B49a	3024	1/23	81	32.4	6.9	-
White Pass (E.Side)	21C28	4500	1/3	34	10.1	-	9.6
			1/16	48	12.0	-	14.0
			1/30	49	14.2	0.0	18.2
AHTANUM CREEK							
Ahtanum R.S.	21C11	3100	12/28	7.4	1.9	0.0	3.1
			1/25	31	8.6	0.0	6.3
Green Lake	21C10	6000	1/24	80	27.7	2.3	-
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C04	5700	1/27	46	12.7	2.4	19.3
MILL CREEK							
Homestead	17C01	4030	1/25	11	3.8	0.6	6.5
Martin Springs	17C02	4400	1/25	16	4.6	1.6	9.8
Tollgate	18D03M	5070	2/2	44	13.7	4.0	16.7
KLICKITAT RIVER							
Satus Pass	20D01	4030	1/30	25	6.9	0.0	8.7
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	12/27	43	15.1	2.7	17.8
			1/27	69	25.0	3.4	32.5
Surprise Lakes	21C13A	4250	12/27	39	14.2	3.0	20.1
			1/27	72	25.2	4.2	35.9
WIND RIVER							
Old Man Pass	21D19	3100	12/27	6	0.6	0.0	7.5
			1/27	13	3.9	0.0	14.7

\# Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average #
LEWIS RIVER							
Blue Lake +	21C22a	4800	12/27	94	32.0	8.0	34.5
			1/27	136	49.0	7.7	60.5
Bob's Trail	21C21	2200	12/28	5	1.6	0.0	6.5
			1/26	5.2	1.3	0.0	12.0
Calamity Ridge +	22D01a	2500	12/27	2	0.2	0.0	3.9
			1/26	2	0.6	0.0	5.6
Council Pass +	21C18	4200	12/27	36	12.6	4.3	18.6
			1/27	58	20.3	2.8	29.7
Cultus Creek	21C12	4000	12/27	43	15.1	2.7	17.8
			1/27	69	25.0	3.4	32.5
Divide Meadow +	21C29a	5600	12/27	68	23.1	4.8	27.5
			1/27	86	30.1	5.0	42.3
Grand Meadow	21C25	3500	12/27	10	2.2	0.0	10.5
			1/27	26	8.6	0.0	19.4
Lone Pine Shelter	21C26	3800	12/27	28	8.7	1.3	17.0
			1/27	44	14.6	1.3	30.5
Marble Mountain +	22C05a	3200	12/27	10	2.7	0.0	12.7
			1/26	14	5.3	0.0	28.7
New Muddy River	22C06	2000	12/28	0	0.0	0.0	6.4
			1/26	0	0.0	0.0	12.1
Old Man Pass	21D19	3100	12/27	6	0.6	0.0	7.5
			1/27	13	3.9	0.0	14.7
Plains of Abraham +	22C01a	4400	12/27	62	21.7	2.7	28.8
			1/26	110	39.6	2.9	45.2
Smith Creek Road	22C04	2100	12/27	0	0.0	0.0	9.5
			1/26	9.6	3.8	0.0	15.7
Spencer Meadow +	21C20a	3400	12/27	9	2.2	0.3	10.2
			1/26	10	3.4	0.0	17.9
Surprise Lakes	21C13A	4250	12/27	39	14.2	3.0	20.1
			1/27	72	25.2	4.2	35.9
Table Mountain +	21C24a	4200	12/28	56	19.0	4.3	21.4
			1/27	82	28.7	2.1	34.8
Timbered Peak +	21D18a	3000	12/27	4	0.4	0.0	8.0
			1/26	6	1.8	0.0	14.3
COWLITZ RIVER							
Cayuse Pass	21C06	5300	12/31	99	39.1	4.3	41.3
			1/27	130	52.7	7.9	58.7
Plains of Abraham +	22C01a	4400	12/27	62	21.7	2.7	28.8
			1/26	110	39.6	2.9	45.2
White Pass (E. Side)	21C28	4500	1/3	35	10.1	-	9.6
			1/16	48	12.0	-	14.0
			1/30	49	14.2	0.0	18.2

\# Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 9

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
PUGET SOUND DRAINAGE							
WHITE RIVER							
Cayuse Pass	21C06	5300	12/31	99	39.1	4.3	41.3
			1/27	130	52.7	7.9	58.7
Corral Pass	21B13	6000	1/27	73	26.8	4.2	-
Morse Lake	21C17	5400	1/30	108	39.9	3.0	39.4
GREEN RIVER							
Airstrip	21B24	1800	11/30	0	0.0	-	0.6
			12/31	3.4	0.4	0.0	2.5
			1/27	0	0.0	0.0	4.9
Charley Creek	21B25	1200	11/30	0	0.0	-	0.0
			12/31	Trace	0.0	0.0	1.6
			1/27	0	0.0	0.0	1.5
Cougar Mountain	21B42SP	3200	1/27	6.2	2.0	0.0	-
Grass Mtn. No. 2	21B27	2900	11/30	0	0.0	-	2.9
			12/31	8	0.9	0.0	7.6
			1/27	9.7	3.3	0.0	15.3
Grass Mtn. No. 3	21B28	2100	11/30	0	0.0	-	0.7
			12/31	4.8	1.1	0.0	2.6
			1/27	0	0.0	0.0	5.3
Lester Creek	21B29	3100	11/30	7.6	2.0	-	-
			12/31	18	2.5	1.1	9.7
			1/27	24	6.8	2.0	17.8
Lynn Lake	21B50	4000	11/30	0	0.0	-	-
			12/31	4.2	1.2	0.9	-
			1/27	7.8	2.3	0.0	-
Sawmill Ridge	21B31	4700	11/30	26	9.0	-	7.0
			12/31	45	17.3	2.2	15.2
			1/27	59	21.2	3.7	28.6
Snowshoe Butte	21B43SP	5000	1/27	89	32.4	3.5	-
Stampede Pass SP	21B10	3860	12/2	30	13.0	-	6.3
			12/15	59	22.5	-	11.9
			1/3	65	27.6	3.6	16.5
			1/16	75	33.5	4.2	22.0
			1/30	80	34.0	2.0	28.7
Twin Camp	21B30	4100	11/30	12	4.8	-	4.1
			12/31	23	7.5	1.8	11.3
			1/27	34	10.9	1.7	17.6

Average based on 1958-72 average

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 10

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
SNOQUALMIE RIVER							
Olallie Meadows	21B02	3625	1/27	60	23.2	0.8	32.7
SKYKOMISH RIVER							
Stevens Pass	21B01	4070	11/17	52	10.5	-	3.6
			12/2	44	15.9	-	8.9
			12/13	78	29.0	2.3	14.7
			12/28	75	29.2	5.7	21.7
			1/11	103	37.7	6.9	29.0
			1/30	102	39.5	6.3	37.0
Stevens Pass Sand Shed	21B45	4070	12/2	31	11.0	-	-
			12/14	59	19.5	-	-
			12/28	58	21.9	2.9	-
			1/11	80	28.8	3.3	-
			1/30	76	28.9	2.3	-
SKAGIT RIVER							
Beaver Creek Trail	21A04	2200	1/27	37	12.8	0.5	-
Beaver Pass	21A01	3680	1/27	57	19.0	1.4	-
Brown Top Ridge +	21A28a	6000	1/27	113	43.6	13.6	-
Cloudy Pass +	20A22a	6500	2/3	92	35.9	5.6	29.0
Devils Park	20A04	5900	1/28	95	35.6	8.7	31.9
Freezeout Creek Trail	20A01	3500	1/27	34	9.6	0.9	-
Freezeout Meadows New	20A38	5000	1/27	62	20.9	7.4	-
Granite Creek	21A29A	3500	1/28	47	13.5	3.1	-
Harts Pass	20A05A	6500	1/28	96	37.1	9.7	32.7
Klesilkwa	35B-Can	3700	2/1	Late Report		0.4	9.9*
Lyman Lake	20A23A	5900	2/3	144	53.3	14.8	42.1
Meadow Cabins	20A08	1900	1/27	21	7.2	0.0	-
New Hozomeen Lake	21A30	2800	1/27	26	8.2	0.8	-
New Tashme	26A-Can	2500	2/1	Late Report		2.0	8.5*
Rainy Pass	20A09	4780	1/28	101	37.6	7.7	29.5
Thunder Basin	20A07	4200	1/27	50	16.0	3.0	-
BAKER RIVER							
Baker Pass +	21A27a	4900	11/3	24	6.0	-	-
			12/16	Marker Missing		-	-
Dock Butte +	21A11A	3800	11/3	15	4.0	1.0	-
			12/16	68	20.0	-	-
			12/27	72	22.0	4.0	-
			2/1	Not Measured		4.0	44.8
Easy Pass +	21A07A	5200	11/3	36	9.0	2.0	-
			12/16	120	36.0	-	-
			12/27	120	36.0	10.0	-
			1/27	132	53.0	11.0	53.9

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 11

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (inches)	Water Content (inches)	PAST RECORD: Water Content (inches) Last Year	Average #
BAKER RIVER (Cont.)							
Jasper Pass +	21A06A	5400	11/3	32	8.0	2.0	-
			12/16	132	40.0	-	-
			12/27	126	38.0	19.0	-
			1/27	156	72.0	14.0	65.7
Marten Lake	21A09A	3600	11/3	16	4.0	1.0	-
			12/16	96	27.0	-	-
			12/27	92	28.0	11.0	-
			2/1	Not Measured		14.0	52.2
Mt. Blum +	21A18a	5800	11/3	10	3.0	2.0	-
			12/16	78	30.0	-	-
			12/27	78	23.0	11.0	-
			1/27	106	42.0	11.0	42.5
Panorama New	21A26	4300	1/13	94	38.9	9.6	-
			1/28	104	48.0	7.5	-
Rocky Creek	21A12A	2100	11/3	12	3.0	0.0	-
			12/16	32	9.0	-	-
			12/27	27	8.0	0.0	-
			2/1	Not Measured		0.0	21.5
Schreibers Meadow	21A10A	3400	11/3	10	3.0	0.0	-
			12/16	56	17.0	-	-
			12/27	58	17.0	4.0	-
			2/1	Not Measured		2.0	39.9
S. F. Thunder Creek +	21A14A	2200	11/3	0	0.0	0.0	-
			12/16	16	5.0	-	-
			12/27	16	5.0	0.0	-
			1/27	0	0.0	0.0	7.4
Watson Lakes	21A08A	4500	11/3	24	6.0	1.0	-
			12/16	70	21.0	-	-
			12/27	73	22.0	10.0	-
			1/27	88	37.0	9.0	42.9
NOOKSACK RIVER							
Glacier Creek	21A23	3700	11/27	15	6.9	0.0	-
			12/30	23	7.4	0.9	-
			2/1	Not Measured		0.0	-
Panorama New	21A26	4300	1/13	94	38.9	9.6	-
			1/28	104	48.0	7.5	-

\# Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO FEBRUARY 1, 1978 - APPENDIX 12

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B04	5200	1/30	34	10.1	0.0	-
MORSE CREEK							
Cox Valley	23B14	4500	1/28	60	22.6	0.0	-
ELWHA RIVER							
Hurricane	23B03	4500	1/27	30	9.1	0.0	16.7

Average based on 1958-72 average

USDA SCS PORTLAND OREGON 1973.

PRECIPITATION STORAGE GAGES

Amount of precipitation in inches that has accumulated since the previous measurement.

BAW FAW PEAK

Not reported

BIG BOULDER CREEK

8/11/76	Recharge
6/6/77	43.12
10/12/77	7.88
11/8/77	6.25

BUMPING RIDGE

7/20/76	Recharge
6/9/77	43.12

CANTON CREEK

9/30/76	Recharge
11/10/76	6.70
12/10/76	7.00
1/17/77	6.70
3/10/77	10.40
4/8/77	7.20
4/13/77	0.70
4/28/77	1.60
5/12/77	2.70
6/1/77	3.20
6/21/77	1.10
7/18/77	0.90
8/25/77	0.20
8/31/77	5.60
9/19/77	2.25
9/26/77	3.20

CARNATION 15E

7/26/76	Recharge
9/7/76	7.45
10/11/76	1.70
11/13/76	5.33
12/1/76	6.18
2/5/77	20.45
5/10/77	29.18
6/8/77	7.02
7/2/77	1.50
8/5/77	2.34
9/7/77	7.67
10/8/77	7.24

CEDAR FALLS 4SE

8/2/76	Recharge
9/7/76	8.31
10/6/76	1.49
11/8/76	5.96
12/3/76	5.97
1/24/77	17.46
5/9/77	27.27
6/1/77	5.32
7/6/77	3.41
7/26/77	1.28
9/6/77	7.02
10/4/77	5.97

CEDAR FALLS 5SE

7/28/76	Recharge
9/2/76	2.77
10/5/76	3.19
11/9/76	4.69
12/3/76	3.40
2/4/77	11.07
5/5/77	14.70
5/31/77	4.68
7/6/77	1.50
7/29/77	0.86
9/2/77	4.47
10/3/77	5.75

CEDAR FALLS 7SE

8/2/76	Recharge
9/2/76	5.96
10/4/76	1.07
11/5/76	5.32
12/1/76	4.48
1/24/77	13.84
5/9/77	23.86
6/1/77	5.54
7/5/77	1.27
8/1/77	1.50
9/6/77	4.47
10/3/77	5.54

CEDAR FALLS 7SSE

8/2/76	Recharge
9/7/76	5.11
10/6/76	2.13
11/8/76	4.90
12/3/76	5.75
1/24/77	16.62
5/4/77	27.48
6/1/77	5.97
7/5/77	2.98
8/2/77	1.49
9/6/77	6.60
10/4/77	5.54

CEDAR FALLS 8SE

7/28/76	Recharge
9/2/76	3.83
10/6/76	3.62
11/5/76	3.84
12/31/76	3.41
1/24/77	11.71
5/6/77	18.75
6/1/77	4.26
7/5/77	1.27
7/29/77	0.86
9/6/77	5.96
10/3/77	4.69

CEDAR FALLS 10SE

8/2/76	Recharge
9/2/76	5.32
10/4/76	3.40
11/5/76	7.24
12/3/76	7.25
1/24/77	16.61
5/9/77	30.25
6/1/77	6.17
7/5/77	2.13
8/1/77	1.92
9/6/77	7.03
10/3/77	6.39

NOTE: Previously published by NOAA in "Storage-Gage Precipitation Data for Western United States"

PRECIPITATION STORAGE GAGES (Continued)

CONCRETE 12NE

10/9/76	Recharge
3/28/77	53.67
4/26/77	5.53
9/1/77	20.38

CONCRETE 12NNW

10/8/76	Recharge
2/24/77	51.61
3/28/77	19.96
4/26/77	8.43
6/9/77	8.90
9/2/77	7.40

CONSULTANT CREEK

7/26/76	Recharge
9/7/76	9.44
10/11/76	2.93
11/13/76	5.17
12/1/76	7.43
2/5/77	21.38
5/10/77	31.73
6/2/77	9.22
7/2/77	1.12
8/5/77	10.35
9/7/77	6.98
10/8/77	5.85

COUGAR 16NE

9/30/77	Recharge
12/28/76	11.32
3/29/77	23.40
9/27/77	22.56

DRY CREEK

7/30/76	Recharge
9/7/76	9.00
10/11/76	2.47
11/13/76	4.72
12/1/76	9.22
2/15/77	20.92
5/10/77	32.18
6/2/77	8.10
7/2/77	2.02
8/2/77	4.28
9/10/77	10.80
10/8/77	4.96

EASY PASS

10/8/76	Recharge
2/24/77	23.74
3/29/77	7.91
4/26/77	4.17
6/9/77	8.46
9/1/77	11.65

FROZEN MOUNTAIN

7/29/76	Recharge
9/7/76	8.77
10/11/76	2.70
11/13/76	4.28
12/1/76	8.78
2/5/77	21.82
5/10/77	34.20
6/2/77	7.66
7/2/77	2.02
8/8/77	4.72
9/10/77	8.78
10/8/77	4.96

GLACIER CREEK

9/27/76	Recharge
5/18/77	63.55
10/7/77	18.05

GRASS MTN. # 1

9/30/76	Recharge
11/10/76	7.40
12/9/76	9.45
2/3/77	12.60
3/10/77	10.60
4/28/77	13.50
5/9/77	2.50
6/24/77	6.50
9/6/77	9.90
9/26/77	4.30

GREEN RIVER II

10/4/76	Recharge
11/3/76	2.90
11/23/76	2.00
12/6/76	0.70
1/7/77	6.30
2/10/77	1.80
3/2/77	2.90

GREEN RIVER II (Continued)

4/8/77	7.60
4/15/77	0.40
5/18/77	2.70
6/1/77	2.00
6/21/77	0.90
7/6/77	0.00
7/26/77	0.60
9/1/77	3.90
9/12/77	0.90
9/26/77	2.50

JASPER PASS

10/9/76	Recharge
2/24/77	30.35
3/29/77	14.21
4/26/77	5.63
6/9/77	10.91
9/1/77	7.99

LESTER 5NNE

7/27/76	Recharge
9/2/76	5.54
10/4/76	2.34
11/5/76	5.96
12/1/76	5.54
1/28/77	15.34
5/6/77	25.56
6/1/77	5.96
7/6/77	2.13
7/27/77	1.28
9/2/77	4.90
10/4/77	6.60

LESTER 7NNW

7/27/76	Recharge
9/2/76	4.90
10/5/76	1.71
11/5/76	5.11
12/3/76	5.32
5/6/77	37.49
6/1/77	4.26
7/6/77	1.70
8/2/77	1.07
9/2/77	4.26
10/4/77	6.39

PRECIPITATION STORAGE GAGES (Continued)

LESTER 8N

7/27/76	Recharge
9/7/76	6.17
10/5/76	-1.49
11/5/76	7.88
12/3/76	4.90
5/5/77	40.05
5/31/77	4.47
7/6/77	2.98
8/1/77	-0.22
9/2/77	5.75
10/4/77	6.60

LESTER 8NNW

7/27/76	Recharge
9/2/76	4.47
10/5/76	0.21
11/5/76	4.48
12/3/76	5.33
5/5/77	35.78
6/1/77	3.84
7/6/77	1.92
8/2/77	1.07
9/2/77	4.05
10/4/77	6.18

LESTER 10NNW

7/28/76	Recharge
9/2/76	4.90
10/5/76	2.77
11/5/76	5.54
12/3/77	4.69
1/24/77	14.48
5/5/77	25.98
5/31/77	4.69
7/5/77	2.34
7/27/77	1.28
9/6/77	6.82
10/4/77	4.90

LESTER 11NW

7/28/76	Recharge
9/2/76	4.26
10/5/76	2.98
11/5/76	4.68
12/3/76	4.05
2/4/77	11.93
5/6/77	22.58
5/31/77	4.68
7/6/77	0.68
7/29/77	0.22
9/6/77	6.60
10/3/77	4.04

LONE PINE SHELTER

9/30/76	Recharge
12/27/76	3.19
2/23/77	7.38
3/29/77	17.95
4/25/77	2.26
6/8/77	12.33
9/27/77	9.81

MARTIN LAKE

10/9/76	Recharge
2/24/77	58.66
3/29/77	27.32
4/26/77	6.85
6/9/77	15.83
9/1/77	13.46

MIDDLE FORK NOOKSACK

10/14/76	Recharge
5/17/77	56.90
10/6/77	16.80

MIDDLE FORK TAYLOR

8/3/76	Recharge
9/7/76	9.16
10/5/76	1.49
11/8/76	5.33
12/2/76	4.26
1/24/77	13.63
5/5/77	20.02
6/1/77	7.88
7/3/77	1.92
7/26/77	2.56
9/7/77	7.87
10/3/77	5.53

MONTE CRISTO

9/16/76	Recharge
11/7/77	118.10

MT. INDEX

7/29/76	Recharge
9/7/76	8.55
10/11/76	6.52
11/13/76	2.47
12/1/76	9.45
2/5/77	21.38
5/10/77	33.07
6/2/77	8.78
7/2/77	2.26
8/8/77	6.07

MT. INDEX (Continued)

9/10/77	11.25
10/8/77	4.28

NORTH FORK TAYLOR

8/3/76	Recharge
9/13/76	8.31
10/6/76	1.70
11/8/76	4.05
12/2/76	3.83
1/24/77	11.08
5/5/77	15.55
6/1/77	7.45
7/3/77	2.77
7/26/77	1.06
9/7/77	7.25
10/3/77	5.32

OLDMAN PASS

9/29/76	Recharge
12/27/76	9.31
2/23/77	5.12
6/8/77	21.47
9/28/77	8.30

PARK CREEK RIDGE

8/29/76	Recharge
6/10/77	39.88
10/4/77	4.62

PORT ANGELES 11S

8/23/76	Recharge
9/15/77	27.00

RUSTY CREEK

10/29/76	Recharge
11/29/76	0.00
12/28/76	0.60
1/27/77	0.20
2/24/77	0.50
3/29/77	4.30
4/27/77	0.70
5/26/77	4.30
6/28/77	3.20
7/27/77	0.60
8/29/77	1.90
9/26/77	4.30
10/26/77	0.80
11/29/77	8.30
12/30/77	7.35
1/27/78	3.65

PRECIPITATION STORAGE GAGES (Continued)

SALMON MEADOWS

10/29/76	Recharge
11/29/76	0.35
12/28/76	1.00
1/27/77	0.30
2/24/77	0.50
3/29/77	6.10
4/27/77	0.60
5/26/77	6.20
6/28/77	2.70
7/27/77	1.20
8/29/77	2.40
9/26/77	3.40
10/26/77	1.10
11/29/77	7.25
12/30/77	6.55
1/27/78	3.70

SHERMAN CREEK PASS

9/2/76	Recharge
9/30/77	16.22

SPRUCE SPRINGS

10/6/75	Recharge
10/1/76	49.95
10/1/77	26.30

SKYKOMISH 7½W

7/30/76	Recharge
9/14/76	10.65
10/10/76	1.70
11/14/76	7.46
12/1/76	12.78
6/2/77	74.97
7/6/77	4.26
8/3/77	2.77
9/10/77	10.86
10/5/77	5.33

SPIRIT LAKE 3S

8/31/76	Recharge
11/30/76	10.35
12/30/76	4.05
2/15/77	4.05
4/04/77	16.42
4/31/77	3.15
7/20/77	13.73
9/30/77	13.57

SURPRISE LAKES

7/29/76	Recharge
12/27/76	32.0
6/3/77	33.0

SWAUK PASS

Not Reported

TAYLOR CREEK

8/3/76	Recharge
9/13/76	6.82
10/6/76	1.49
11/8/76	3.41
12/2/76	2.77
1/24/77	10.65
5/5/77	13.63
6/1/77	5.96
7/3/77	1.71
8/2/77	2.13
9/7/77	5.96
10/3/77	4.26

TROUGH # 2

7/15/76	Recharge
9/15/76	2.40
6/6/77	19.10
11/8/77	4.50

TROUT LAKE 13NNW

9/29/76	Recharge
12/27/76	1.84
2/23/77	5.20
3/29/77	12.75
9/28/77	19.04

TROUT LAKE 19WNW

9/29/76	Recharge
12/28/76	1.26
3/29/77	20.38
9/28/77	21.89

TRUCK HILL

7/29/76	Recharge
9/7/76	9.68
10/11/76	2.70
11/13/76	4.72

TRUCK HILL (Continued)

12/1/76	9.00
2/5/77	20.25
5/10/77	30.82
6/2/77	9.00
7/2/77	1.57
Demolished	

UPPER WHEELER

5/28/76	Recharge
6/28/76	0.20
7/28/76	0.05
1/27/77	0.20
2/25/77	0.50
3/30/77	2.00
4/28/77	0.00
5/30/77	1.60
6/29/77	0.39
7/31/77	0.02
8/28/77	0.75
9/27/77	0.90
10/28/77	0.35
11/25/77	3.20
12/27/77	7.80
1/27/78	5.70

YELLOW CREEK

7/26/76	Recharge
9/7/76	8.55
10/11/76	2.02
11/13/76	2.48
12/1/76	5.40
2/5/77	10.80
5/10/77	25.65
6/2/77	7.20
7/2/77	0.68
8/5/77	3.38
9/7/77	4.73
10/8/77	3.60

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
  Corps of Engineers
U. S. Department of Agriculture
  Forest Service
U. S. Department of Commerce
  NOAA, National Weather Service
U. S. Department of the Interior
  Bonneville Power Administration
  Bureau of Reclamation
  Geological Survey
  National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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WATER SUPPLY OUTLOOK FOR WASHINGTON

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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
MAR. 1, 1978

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Mast of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is deloyed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course meosurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snaw surveys are made manthly ar semi-monthly from January 1 through June 1 in most states. There are about 1900 snow caurses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a cantinuous record of snaw water and ather parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report far Western United States presents a broad picture of water supply outloak conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states obout every five years. Data for the current year is summarized in a West-wide basic dato summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Partland, Oregon 97209.

Copies of state and local reports may also be obtoined from state offices of the Soil Conservotion Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 Eost Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Montana 59715
Nevado	P. O. Box 4850, Reno Nevado 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Woshington	360 U.S. Court House, Spokane, Woshington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA-SCS-PORTLAND, OR 1977

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

GALEN S. BRIDGE

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

WILBUR G. HALLAUER

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor
and
NORINE P. KENT, Statistical Assistant

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

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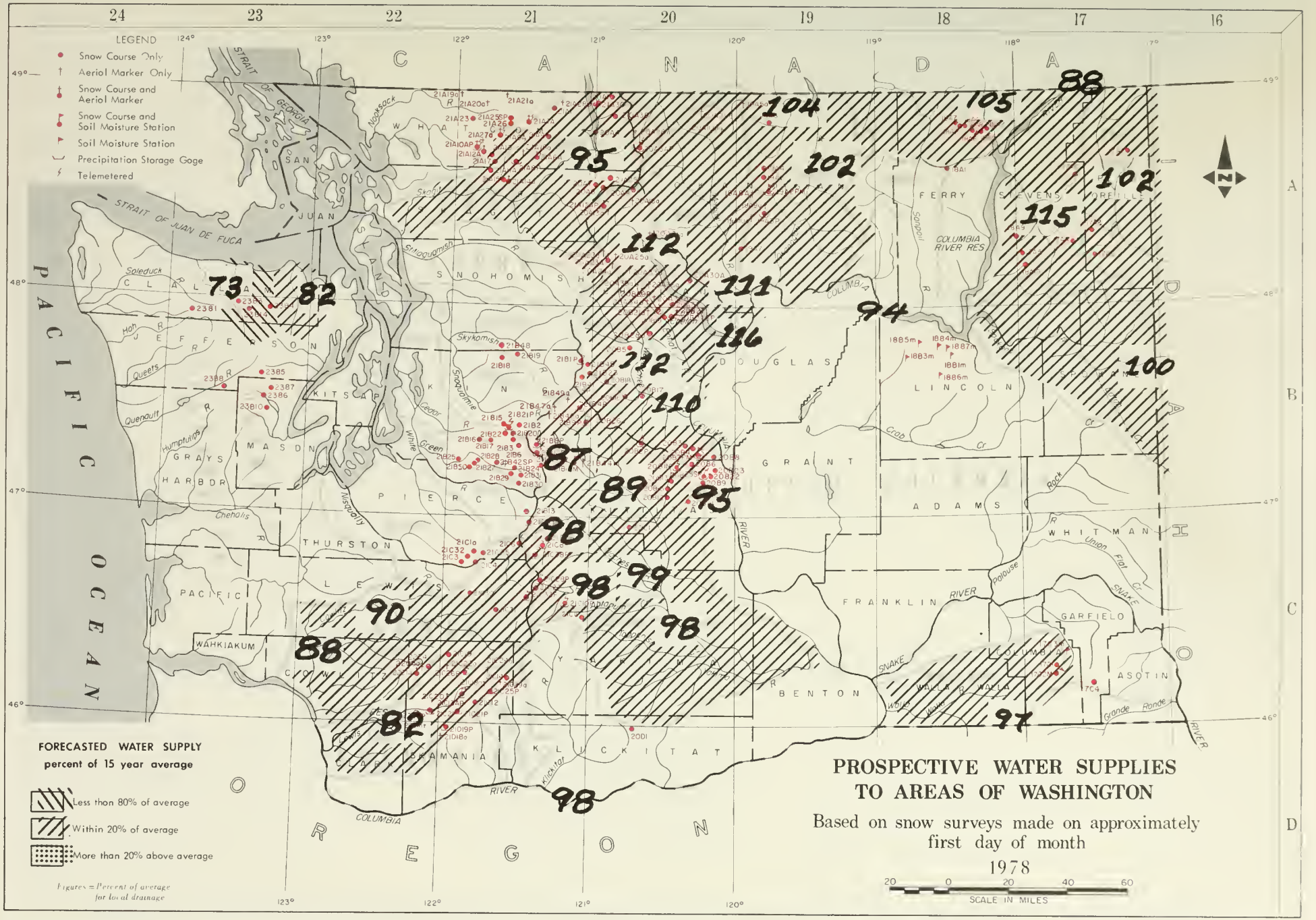
LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON
Based on snow surveys made on approximately first day of month
1978
SCALE IN MILES
CANADA
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
COLUMBIA RIVER RES
COLUMBIA RIVER
SNAKE RIVER
SAN JUAN
WHATCOM
SNOHOMISH
CLALLAM
JEFFERSON
KITSAP
MASON
GRAYS HARBOR
PIERCE
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okonogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Bosin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiot River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18L	3540
Pope Ridge Snnw Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17L	1127
Merritt	20B1B	4	26N	16E	2140
Stevens Pass	2181P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700

Wenotchee River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Trough #2	20B25SP	10	20N	20L	5310

Colockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yokimo River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11L	2450
Van Epps Pass	20826a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	40E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030

White Solmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8I	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Olvide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisquolly River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100

Cedor River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9I	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10L	3400

Snoquolmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skogit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200,

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A1S	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

Nooksock River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23B14	31	29N	6W	4500

Elwho River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	2383	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

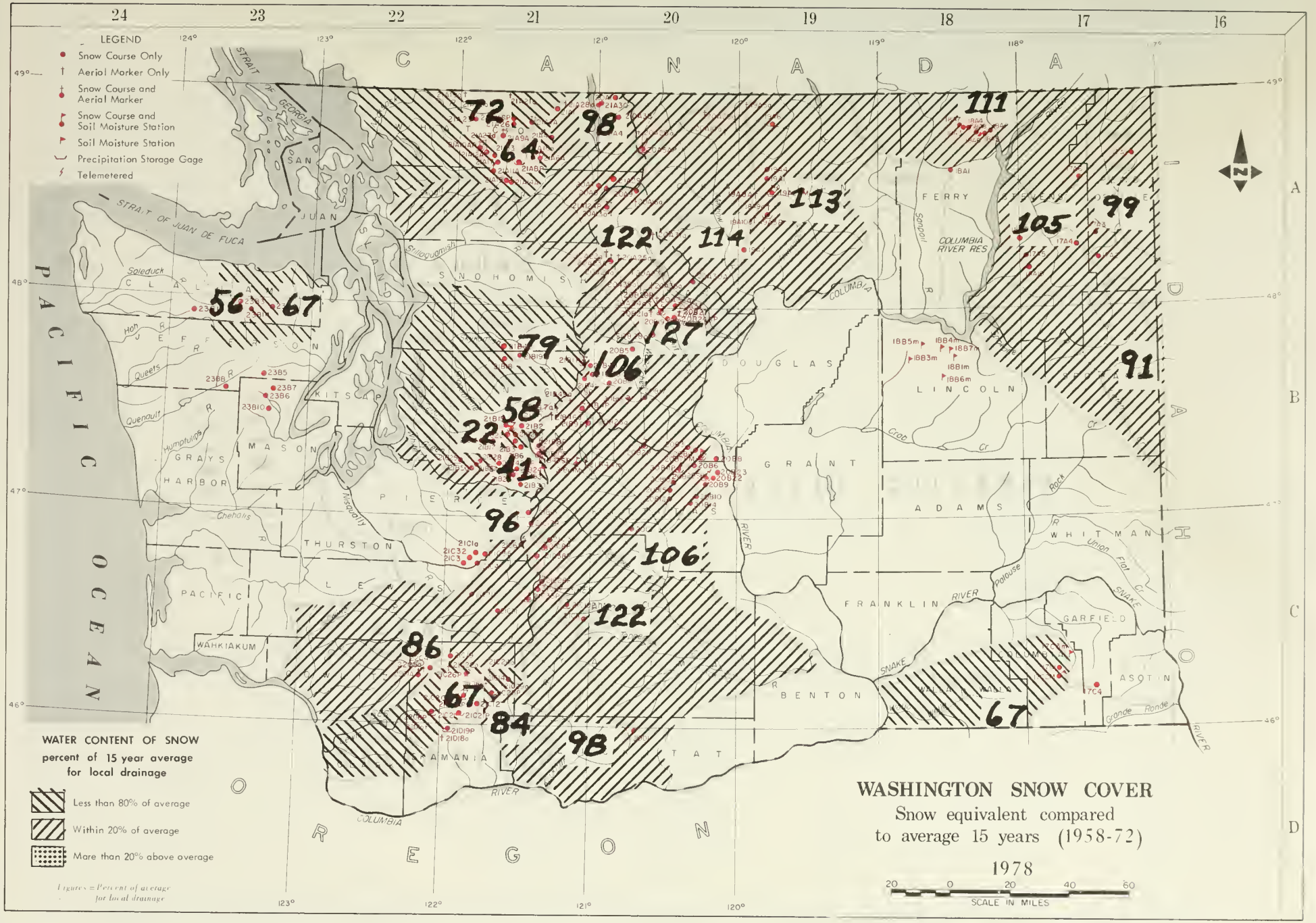
Soleduck River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow


LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
WASHINGTON SNOW COVER
Snow equivalent compared to average 15 years (1958-72)
1978
SCALE IN MILES
CANADA
IDAHO
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
COLUMBIA RIVER RES
SAN JUAN
SNOHOMISH
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
PACIFIC
WAHKIAKUM
SKAMANIA
DOUGLAS
GRANT
FERRY
LINCOLN
ADAMS
WHITMAN
FRANKLIN
BENTON
GARFIELD
ASOTIN
72
64
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111
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sonpoil River

Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogon River

Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900

Wenotchee River

Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700

Wenotchee River (continued)

Trough #2	20B25SP	10	20N	20E	5310

Colockum Creek

Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crob Creek

Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yokimo River

Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

Spruce Springs	17C4	9	8N	40E	5700

Mill Creek

Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400

Klickitot River

Satus Pass	2001	21	6N	17E	4030

White Salmon River

Cultus Creek	21C12	35	7N	8E	4000

Lewis River

Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3S00
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	SE	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	SE	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

Cayuse Pass	21C6	15	16N	10E	S300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	S050

White River

Corral Pass	21B13	30	18N	11E	6000

Green River

Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B2S	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21831	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	S000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100

Cedor River

City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21822	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

Lake Elizabeth	21B19	33	26N	10E	2900

Skogit River

Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200

Baker River

Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	S800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

Nooksack River

Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

Deer Park	23B4	1	28N	5W	S200

Morse Creek

Cox Valley	23B14	31	29N	6W	4500

Elwha River

Hurricane	23B3	36	29N	7W	4500

Skokomish River

Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

Soleduck River

Oeer Lake	2381	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM (EXAMPLE)

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington

March 1, 1978

The March 1 snow survey results are not much different from those made last month. Some watersheds now show that there is a higher percentage of normal snow pack while others show the opposite. Some of this is due to the fact that more snow courses are measured on the first of March than on the first of February and some because there was actually a change in the snow cover percentage. The end result is that some forecasts have been increased, but most of them have been lowered from that previously published. Precipitation, as measured by the National Weather Service, at valley stations is also a variable factor, with some divisions reporting above normal rainfall and some below. The end result of the precipitation and snow cover measurements is that the water supply for this forthcoming water use season should be adequate for most needs over the state. Exceptions to this could possibly be in the Olympic Peninsula and the Green, Cedar and Snoqualmie Watersheds on the west side, but even here reservoirs are in good shape and so problems are not anticipated.

SNOW COVER

In the Upper Columbia River Basin in Washington and its immediate tributaries, snow cover ranges from 9 percent below normal on the Spokane River to a high of 27 percent above normal on the Entiat. The Lower Columbia Drainage has a snow pack that ranges from 33 percent below normal on the Lewis and Mill Creek Drainages to 2 percent below normal on the Klickitat, but this, measured by only one snow course. On the Puget Sound Drainage from the Cascades, the snow pack ranges from 2 percent below normal for the Skagit Drainage down to 78 percent below in the Cedar. The Olympic Peninsula measurements show the snow pack in this area to be from 44 percent below normal up to 33 percent below. Comparisons with last years measurements at this time are similar to those reported last month and due to the total lack of snow in 1977, these percentage numbers are ridiculously high and range from 186 to 1224 percent greater.

RESERVOIRS

The major reservoirs in the state of Washington are now in pretty good shape. The five Yakima irrigation reservoirs have 12 percent above average amounts of water in storage as of March 1. The two Okanogan Irrigation District reservoirs are not as good, being only 54 percent full as of March 1. Power reservoirs, although not full, should all fill with the spring runoff. Flood releases have been started on some reservoir systems but in other cases these flood releases have been curtailed for later adjustments.

PRECIPITATION

Rainfall in the state ranged from 49 percent below normal to 39 percent above during the month of February. For the winter period, November through February, the precipitation now ranges from 17 percent below normal to 52 percent above. Only the Columbia above Castlegar in British Columbia has substantially below normal amounts of rainfall for this winter season.

STREAMFLOW

In spite of the above normal precipitation reported above, streamflow was below normal in every case in the state of Washington with the exception of Okanogan River near Tonasket. Flow at this station was 3 percent above normal and is probably the result of reservoir management of Okanogan Lake. The flow of The Dalles was 20 percent below normal and the Green, below Howard Hanson Dam, 54 percent below normal for the lowest in the state. Forecasts of streamflow for the forthcoming irrigation and water use season now range from 29 percent below normal for the April-July period as measured on the Elwha River near Port Angeles to a high of 17 percent above normal for the Chelan and Entiat Rivers April-June runoff. As can be seen from these forecast numbers, most of the water supply will be near normal in the state of Washington during 1978. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - March, 1978

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1977 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Forecast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM **							
Columbia River	40700	88	Apr-Sept	31583	53937	41101	46410
at Birchbank 1/	31800	85	Apr-July	23839	38979	32944	37548
	22000	80	Apr-June	18040	26054	22429	27549
Columbia River	64600	94	Apr-Sept	41805	80974	66501	69020
at Grand Coulee 1/	54900	94	Apr-July	32813	62715	55870	58368
	43300	94	Apr-June	26413	46556	41377	46049
Columbia River	71600	95	Apr-Sept	43659	86849	73553	75290
bl. Rock Island Dam 1/	61000	95	Apr-July	34392	67890	62727	64181
	48100	95	Apr-June	27740	50520	46759	50594
Columbia River	103000	98	Apr-Sept	54130	122876	108901	104600
at The Dalles, Or 1/	88400	98	Apr-July	42939	99965	94195	89875
	71700	98	Apr-June	35577	79164	73012	73143
PEND OREILLE RIVER SYSTEM **							
Pend Oreille River	16200	102	Apr-Sept	6041	17638	16946	15950
bl. Box Canyon	14700	100	Apr-July	5312	15979	15271	14677
	12600	99	Apr-June	4816	13687	11814	12767
KETTLE RIVER SYSTEM							
Kettle River	1970	105	Apr-Sept	1145	2434	1860	1873
nr. Laurier	1880	105	Apr-July	1105	2112	1779	1794
	1690	103	Apr-June	1037	1826	1592	1640
Colville River	170	115	Apr-Sept		123	225	148
at Kettle Falls	150	110	Apr-July		106	203	137
	142	111	Apr-June		98	187	128

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr Average 58-72
SPOKANE RIVER SYSTEM***							
Spokane River	3000	100	Apr-Sept	1066	3215	3418	2982
at Post Falls, ID 2/	2900	100	Apr-July	1014	3069	3275	2899
	2780	100	Apr-June	960	2884	3033	2773
OKANOGAN RIVER SYSTEM **							
Similkameen River	1580	104	Apr-Sept	645	1944	1434	1516
nr. Nighthawk	1480	104	Apr-July	605	1720	1339	1424
	1300	106	Apr-June	547	1347	1092	1222
Okanogan River	1750	102	Apr-Sept	708	2185	1582	1723
nr. Tonasket	1600	101	Apr-July	644	1836	1437	1582
	1360	101	Apr-June	583	1382	1181	1349
METHOW RIVER SYSTEM **							
Methow River	1140	111	Apr-Sept		1205	992	1031
nr. Pateros	1070	111	Apr-July		1047	911	963
	920	111	Apr-June		802	728	832
CHELAN RIVER SYSTEM							
Chelan River	1450	116	Apr-Sept	599	1466	1364	1253
at Chelan 3/	1300	117	Apr-July	481	1184	1210	1112
	1030	117	Apr-June	403	836	858	881
Stehekin River	1010	112	Apr-Sept	494	1010	1040	904
at Stehekin	870	112	Apr-July	382	787	796	776
	670	112	Apr-June	311	523	526	600
Entiat	275	115	Apr-Sept		310	268	239
nr. Ardenvoir	255	116	Apr-July		266	244	220
	210	117	Apr-June		190	182	180
WENATCHEE RIVER SYSTEM							
Wenatchee River	1470	112	Apr-Sept	633	1510	1396	1312
at Plain	1320	111	Apr-July	542	1263	1262	1187
	1080	113	Apr-June	479	891	924	956
Wenatchee River	1960	110	Apr-Sept	839	2074	1920	1786
at Peshastin	1820	112	Apr-July	730	1746	1738	1629
	1510	114	Apr-June	653	1238	1279	1324
Stemilt Basin	130*	94	May-Sept		144*	134*	138*
nr. Wenatchee							
Icicle Creek	425	115	Apr-Sept				371
nr. Leavenworth	390	115	Apr-July				342
	320	115	Apr-June				279

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

*** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
YAKIMA RIVER SYSTEM							
Yakima River	124	87	Apr-Sept	80	157	168	142
nr. Martin 4/	114	87	Apr-July	70	141	154	131
	100	86	Apr-June	67	117	127	116
Yakima River	860	89	Apr-Sept		1091	1112	968
at Cle Elum 5/	770	88	Apr-July		980	1012	877
	695	91	Apr-June		807	852	764
Yakima River	2115	98	Apr-Sept	802	2521	2610	2161
nr. Parker 6/	1900	97	Apr-July	657	2205	2367	1960
	1700	98	Apr-June	612	1810	2021	1739
Kachess River	109	87	Apr-Sept	60	142	154	125
nr. Easton 7/	100	85	Apr-July	55	131	145	118
	93	88	Apr-June	54	109	120	106
Cle Elum River	435	91	Apr-Sept	248	561	539	477
nr. Roslyn 8/	400	91	Apr-July	211	484	492	437
	365	93	Apr-June	192	370	388	372
Bumping River	143	98	Apr-Sept	65	175	179	146
nr. Nile 9/	133	99	Apr-July	60	152	163	134
	110	98	Apr-June	55	109	119	112
American River	124	97	Apr-Sept		132	149	128
nr. Nile	119	101	Apr-July		116	137	118
	100	100	Apr-June		86	104	100
Tieton River	242	98	Apr-Sept	123	302	299	247
at Tieton Dam 10/	205	97	Apr-July	94	242	253	211
	169	98	Apr-June	77	179	187	172
Naches River	880	99	Apr-Sept		1046	1054	889
nr. Naches 11/	800	99	Apr-July		908	952	810
	680	97	Apr-June		717	761	698
Ahtanum Creek	50	104	Apr-Sept		51	57	48
nr. Tampico 12/	45	102	Apr-July		45	51	44
	40	103	Apr-June		37	44	39

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes. and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, New Reservation, Sunnyside, Kittitas, and Tieton Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Forecast period	1977	1976	1975	15-Yr. Average 58-72
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	26	97	Apr-Sept		41	39	27
nr. Walla Walla	22	92	Apr-July		36	34	24
	20	95	Apr-June		32	30	21
Lewis River	1080	82	Apr-Sept	1040	1285	1188	1319
at Ariel 13/	925	80	Apr-July	831	1130	1022	1151
	880	86	Apr-June	761	990	885	1028
Cowlitz River **	1900	90	Apr-Sept	1587	2296	2127	2101
bl. Mayfield Dam	1680	91	Apr-July		1963	1852	1846
	1450	92	Apr-June		1584	1451	1578
Cowlitz River **	2450	88	Apr-Sept	2172	2924	2646	2773
at Castle Rock 14/	2150	89	Apr-July	1778	2493	2278	2416
	1850	89	Apr-June	1603	2063	1816	2083
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	135	82	Apr-Sept		160	149	165
nr. Sequim	115	84	Apr-July		128	118	137
	85	82	Apr-June		91	82	104
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River at Newhalem 15/	2300	95	Mar-Aug		2841	2339	2418
ELWHA RIVER SYSTEM							
Elwha River	400	73	Apr-Sept		613	544	546
nr. Port Angeles	325	71	Apr-July		492	435	456

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about March 1, 1978 as percent of the same date in 1977 and 1976 and average of record

Tributary Basin	No. of Courses Average	1978 Snow Water Expressed as percent of 1977	1976	1958-72 Avg.
		UPPER COLUMBIA BASIN		
Pend Oreille	17	400	115	99
Kettle	16	323	118	111
Colville	5	554	127	105
Spokane	7	265	85	91
Okanogan	39	449	117	113
Methow	7	1733	181	114
Chelan	4	418	99	122
Entiat	10	633	115	127
Wenatchee	9	599	100	106
Yakima	22	969	121	106
Ahtanum	2	1324	181	122
		LOWER COLUMBIA BASIN		
Mill Creek	3	1034	59	67
Klickitat	1	708	109	98
White Salmon	2	967	81	84
Lewis	11	810	61	67
Cowlitz	2	1220	85	86
		PUGET SOUND		
White	2	714	107	96
Green	8	790	51	41
Cedar	3	754	21	22
Snoqualmie	3	636	48	58
Skykomish	3	653	78	79
Skagit	12	839	75	98
Baker	8	275	55	64
Nooksack	5	286	58	72
		OLYMPIC PENINSULA		
Morse Creek	1	435	-	-
Elwha	1	560	-	56
Dungeness	1	776	-	67

RESERVOIR STORAGE - 1000 ACRE FEET

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured (March 1) 1978	1977	1976	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	134.1	17.1	130.0	162.4
Columbia	Franklin D. Roosevelt Lake	5232.0	2027.3	2937.5	3370.7	2843.8
Columbia	Banks Lake	714.9	720.3	714.9	714.9	588.3
Okanogan	Conconully Reservoir	13.0	3.1	8.4	10.7	11.6
Okanogan	Salmon Lake	10.5	6.0	9.5	9.8	7.4
Chelan	Lake Chelan	676.1	194.6	222.1	463.0	234.9
		YAKIMA				
Yakima	Keechelus Lake	157.8	148.5	79.8	124.1	105.5
Kachess	Kachess Lake	239.0	195.6	203.8	204.0	183.6
Cle Elum	Lake Cle Elum	436.9	264.2	408.3	327.0	264.5
Bumping	Bumping Lake	33.7	18.2	9.2	8.5	10.2
Tieton	Rimrock Lake	198.0	149.8	129.8	148.0	128.2
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	801.1	659.7	1128.6	873.9
Skagit	Diablo Reservoir	90.6	82.9	86.8	87.5	85.0
Skagit	Gorge Reservoir	9.8	8.2	8.2	8.2	-

1/ Based on Active Storage

* 15-year Average 1958-72

SOIL MOISTURE - MARCH

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content Inches as of Mar. 1 1978	1977	1976
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	-	1.9	3.6
Trout Creek	3-M	3600	48	7.3	3.7	3.3	-
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	8.8	7.5	-
Helmers	17C2M	4400	48	12.0	8.4	9.4	-
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	10.8	6.9	11.4

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1977	1976	1975
OKANOGAN							
Salmon Meadows	19A02M	4500	48	5.4	-	3.4	3.2
Trout Creek	3-M	3600	48	7.3	3.2	3.4	3.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	-	-	7.3
Helmers	17C2M	4400	48	12.0	-	-	6.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.6	-	8.6

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct Observed	FALL 1977 2/ Departure	WINTER Nov. 1977 - Feb. 1978 Observed	WINTER Departure 2/
Columbia in Canada	3.41	-1.61	11.26	-2.20
Pend Oreille - Spokane	4.10	+0.06	15.85	+0.83
Northeastern Washington	2.06	-0.41	9.54	+1.43
Southeastern Washington	2.51	0.0	10.19	+1.42
Central Washington	1.08	+0.11	6.95	+2.37
North Central Washington	1.39	-0.21	7.35	+1.57
Northwest Slope Cascades	11.16	-2.05	46.84	-0.26
Southwest Slope Cascades	9.42	+0.74	37.42	+1.94

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

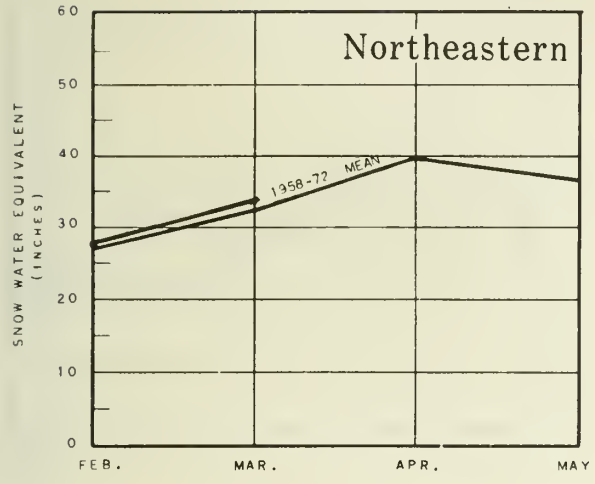
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

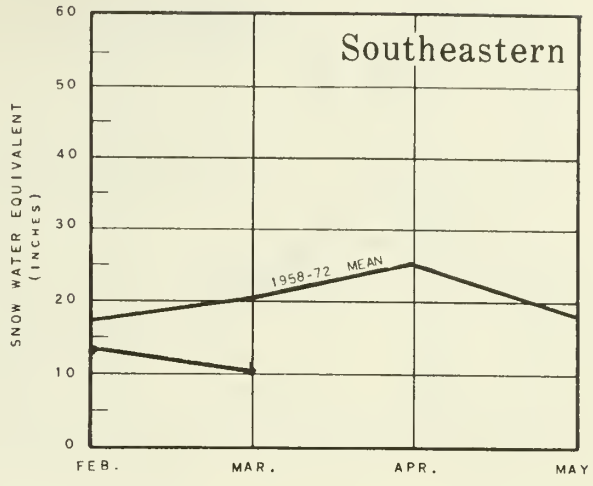
2/ - Departure from 15-year (1958-72) drainage division average.

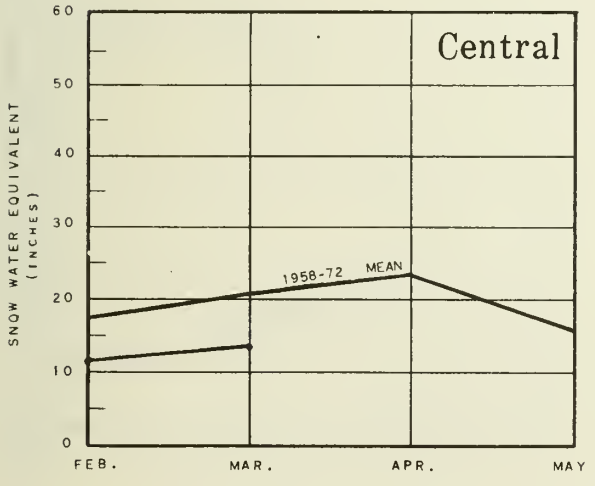
WASHINGTON SNOW COVER

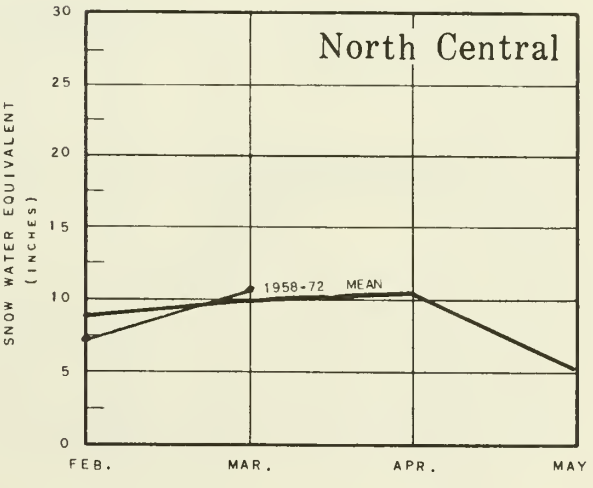
1978

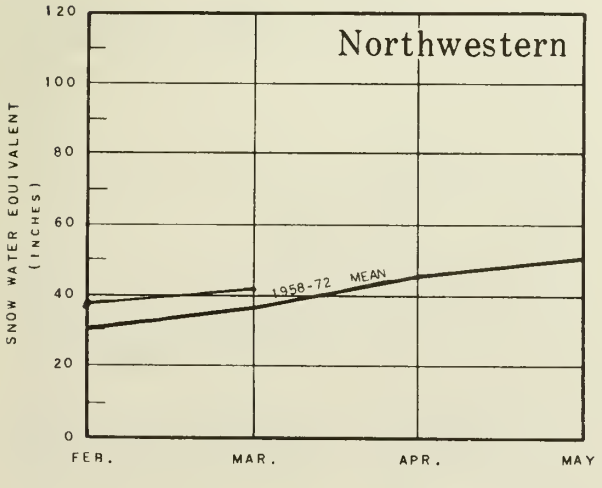
DRAINAGE AREAS

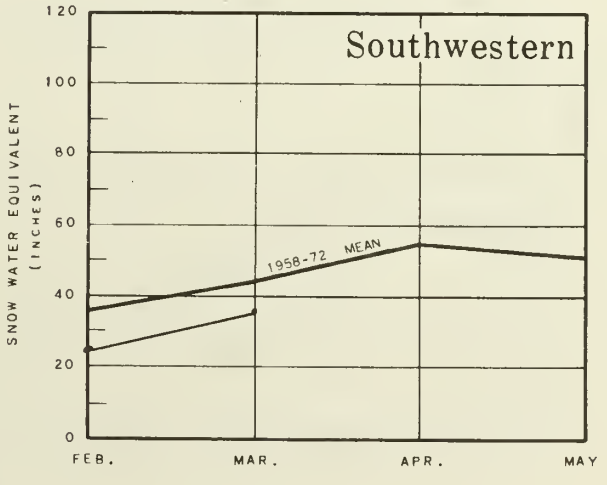










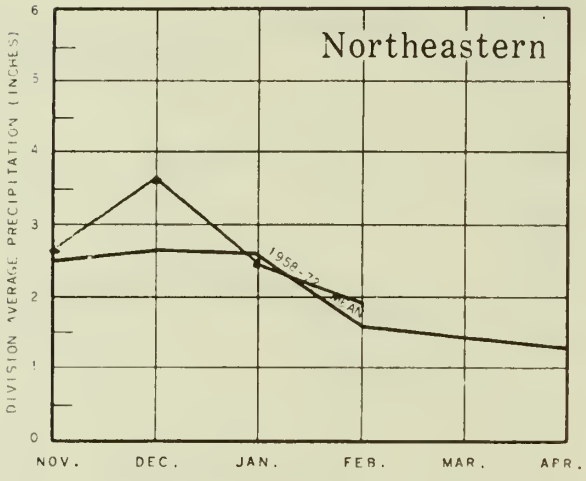


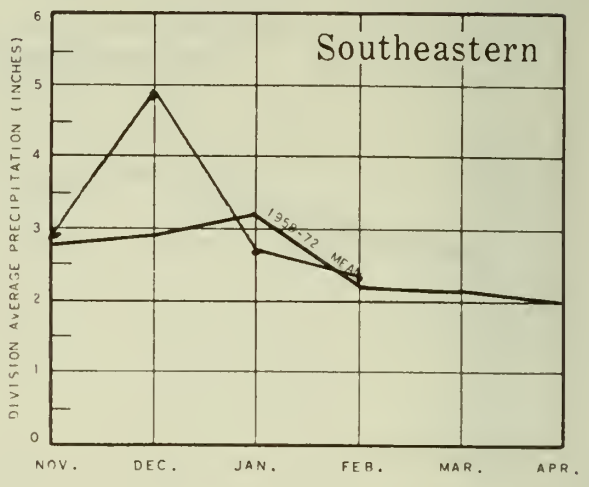
Selected Snow Survey Courses by Soil Conservation Service

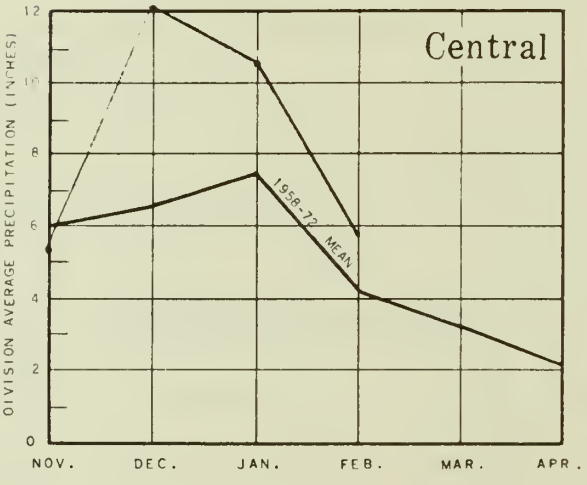
WASHINGTON VALLEY PRECIPITATION

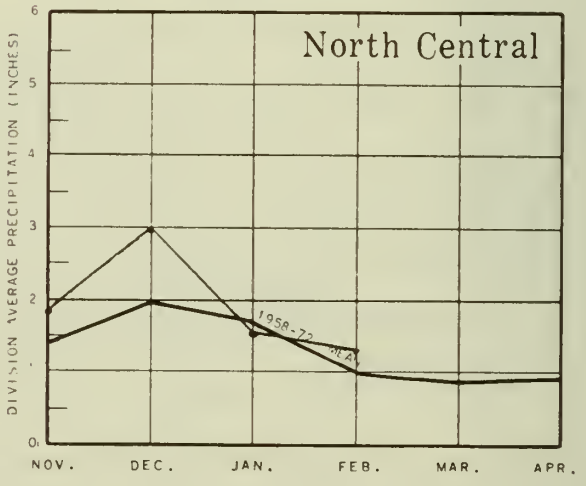
1977 - 1978

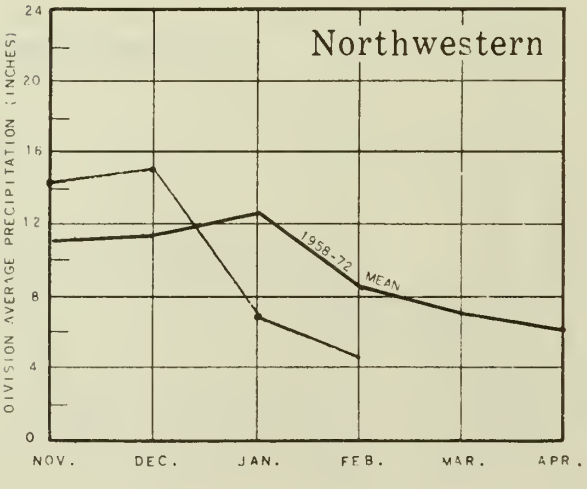
DRAINAGE AREAS

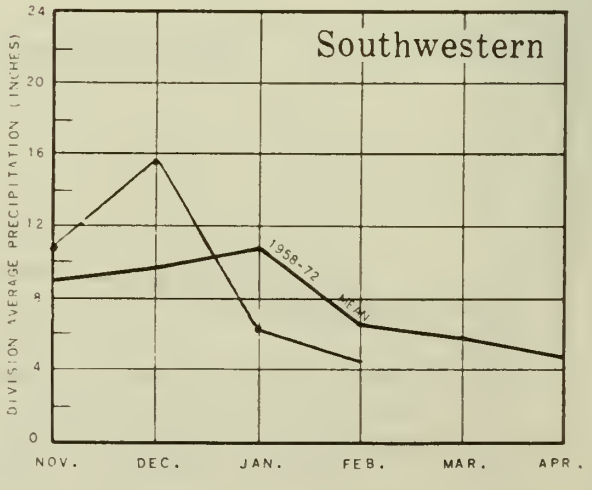






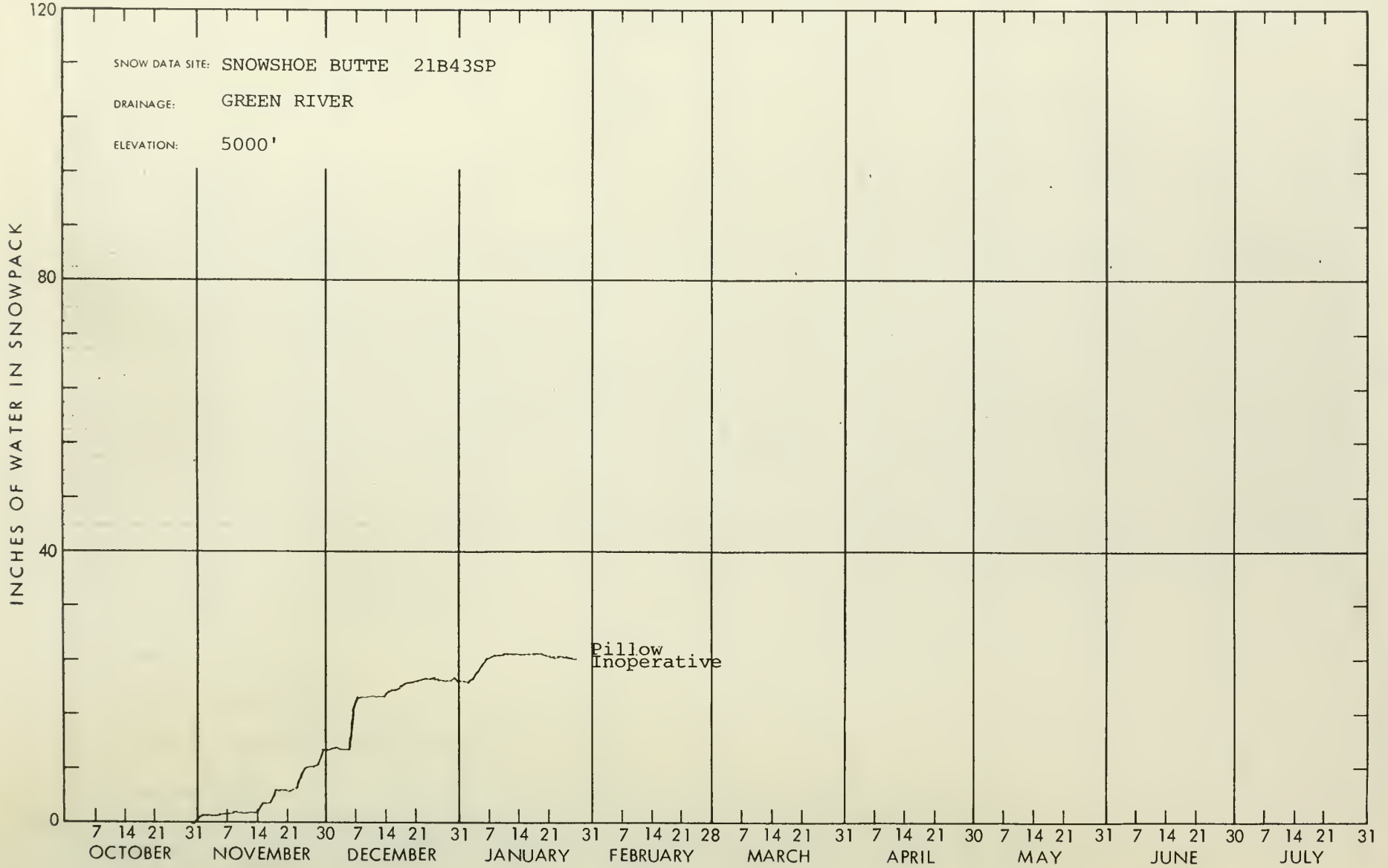




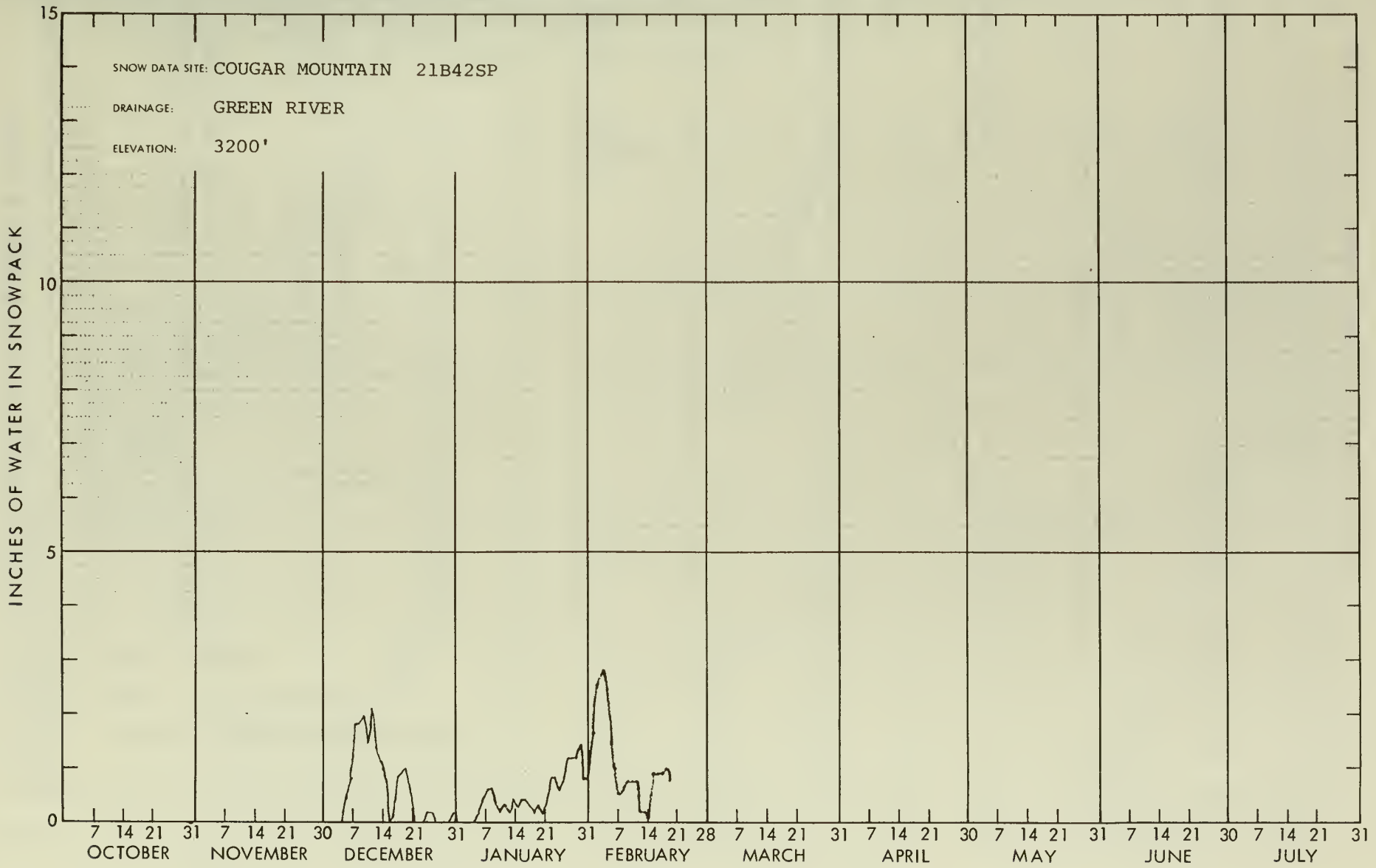


Preliminary Analysis by National Weather Service

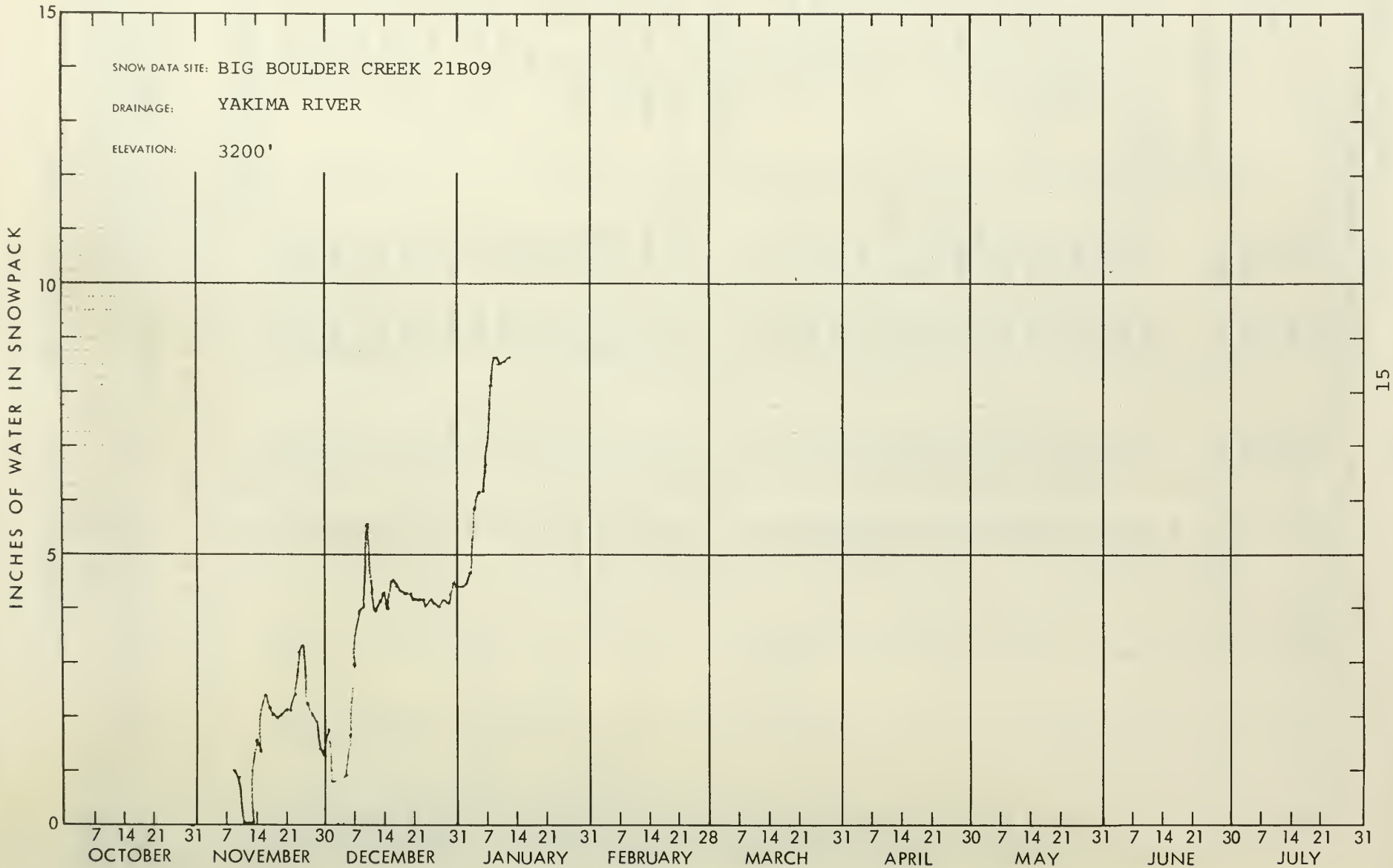
WSFB-X13D


SNOW DATA SITE: SNOWSHOE BUTTE 21B43SP
DRAINAGE: GREEN RIVER
ELEVATION: 5000'
INCHES OF WATER IN SNOWPACK
120
80
40
0
Pillow Inoperative
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13A


SNOW DATA SITE: COUGAR MOUNTAIN 21B42SP
DRAINAGE: GREEN RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13A


SNOW DATA SITE: BIG BOULDER CREEK 21B09
DRAINAGE: YAKIMA RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
15

SNOW DATA TO MARCH 1, 1978 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average#
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	2/28	103	39.0	19.5	43.6
Baree Midway	15B16	4600	2/28	90	31.9	16.5	34.6
Baree Trail	15B15	3800	2/28	36	11.0	1.0	10.5
Benton Meadow	16A02	2344	2/27	20	6.8	1.6	6.1
Benton Spring	16A03	4900	2/27	52	18.0	4.1	17.4
Boyer Mountain	17A02	5250	2/24	67	24.4	4.3	23.7
Brush Creek Timber	14A13	5000	2/27	34	11.0	3.4	11.7
Chewelah	17A04	4923	2/25	47	15.0	3.9	16.2
Heart Lake Trail	14C10	4800	3/3	62	19.8	6.7	21.2
Hoodoo Basin	15C10	6000	3/3	122	46.7	14.8	46.1
Hoodoo Creek	15C01	5900	3/3	116	43.4	12.2	43.2
Lookout	15B02	5250	2/27	90	33.0	10.0	32.7
Mosquito Ridge	16A04A	5100	3/2	106	38.9	-	34.7
Nelson	19-Can	3050	3/1	47	15.0	5.5	14.5*
Schweitzer Bowl	16A06	4500	2/27	71	27.1	8.2	27.8
Schweitzer Ridge	16A05	6100	2/27	106	42.2	11.5	39.9
Winchester Creek	17A03	2970	2/24	32	10.0	2.0	12.1
KETTLE RIVER							
Barnes Creek	90-Can	5300	2/27	50	16.9	12.4	18.0*
Big White Mtn.	154-Can	5500	2/27	55	16.1	8.4	17.4*
Boulder Road	18A02	1450	2/24	16	5.2	0.8	4.9
Butte Creek	18A03	4070	2/24	33	10.0	3.4	9.3
Cabin Creek	18A08	3170	2/24	26	8.7	2.5	8.2
Carmi	126-Can	4100	2/27	30	7.8	2.5	6.3*
Farron # 1	17-Can	4000	2/28	50	15.0	3.2	12.3*
Farron # 2	243-Can	4000	2/28	50	15.2	3.1	11.2*
Goat Creek	18A04	3595	2/24	27	8.2	2.9	7.1
Graystoke Lake	5-Can	5950	3/1	56	16.9	6.9	17.0*
Monashee Pass	48A-Can	4500	2/27	42	14.3	8.8	12.7*
Old Glory Mountain	42-Can	7000	3/1	78	28.5	-	24.6*
Snow Caps Creek	18A05	2150	2/24	17	6.0	1.2	5.1
Snow Caps Trail	18A06	2720	2/24	21	7.2	2.5	6.7
Summit G.S.	18A07	4600	2/24	28	8.3	2.5	7.4
Trapping Creek Lower	166-Can	3050	2/27	23	6.5	2.3	5.3*
Trapping Creek Upper	165-Can	4450	2/27	36	9.1	5.1	9.3*
COLVILLE RIVER							
Baird	17A06	3215	3/2	34	9.5	2.9	7.1
Carlson	18A09	2885	2/25	15	5.0	0.0	4.6
Chewelah	17A04	4925	2/25	47	15.0	3.9	16.2
Stranger Mountain	17A05	4990	2/25	43	12.6	1.9	13.1
Togo	18A10	3370	2/25	32	10.1	1.2	10.9

\# Average based on 1958-72 average

* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
SPOKANE RIVER							
Above Burke	15B08	6100	2/27	58	19.1	8.8	-
Copper Ridge	16B02	4800	2/22	57	20.3	7.8	25.7
Fourth of July Summit	16B03	3100	2/22	23	8.0	2.7	7.3
Lookout	15B02	5250	2/27	90	33.0	10.0	32.7
Lower Sands Creek	16B01	3400	2/22	42	14.6	6.2	17.5
Mosquito Ridge	16A04A	5110	3/2	106	38.9	-	34.7
Roland Summit	15B05A	5200	3/2	85	29.6	-	31.3
Sherwin	16C01	3200	2/24	28	8.8	3.5	13.8
Sunset	15B09A	5600				-	33.7
OKANOGAN RIVER							
Aberdeen Lake	6A-Can	4300	3/1	30	8.4	3.4	6.0*
Blackwall Mountain	100-Can	6250	2/24	70	26.4	8.5	31.5*
Bouleau Lake	234-Can	4580	2/25	44	13.7	6.5	13.3*
Brenda Mine	193-Can	4800	2/24	44	13.9	5.1	12.8*
Brookmere	27-Can	3200	2/27	33	10.5	2.7	9.0*
Carrs Landing Upper	168-Can	3200	2/25	22	7.0	2.1	4.5*
Clark +	19A08a	7000	3/1	Not Measured		-	19.7
Enderby	130-Can	6250	2/24	94	35.3	20.6	32.8
Esperon Creek Lower	164-Can	4400	2/25	41	11.9	3.5	11.1*
Esperon Creek Middle	163-Can	4700	2/25	46	13.2	5.2	13.9*
Esperon Creek Upper	162-Can	5400	2/25	52	16.2	6.2	17.0*
Freezeout Meadows New	20A38	5000	2/24	60	22.4	12.4	25.7
Graystoke Lake	5-Can	5950	3/1	56	16.9	6.9	17.0*
Hamilton Hill	107-Can	4900	2/25	46	17.3	5.0	14.1*
Harts Pass	20A05A	6500	2/25	100	41.8	12.3	38.8
Horseshoe Basin +	19A05a	7000	3/1	Not Measured		-	11.6
Isintok Lake	152-Can	5510	2/26	32	9.8	2.1	7.7*
Lost Horse Mountain	105-Can	6300		Late Report		3.8	8.6*
Loup Loup	19A07	4650	2/24	37	10.9	0.4	9.5
McCulloch	4-Can	4200	2/26	28	7.5	3.4	6.3*
Missezula Mountain	106-Can	5100	2/24	33	11.8	3.0	9.0*
Mission Creek	5A-Can	6000	2/27	54	18.1	10.5	17.6*
Monashee Pass	48A-Can	4500	2/27	42	14.3	8.8	12.7*
Mount Kobau	156-Can	5950	2/27	40	11.1	2.4	11.6*
Muckamuck +	19A09a	6390	3/1	55	16.5	3.0	15.1
Mutton Creek No. 1	19A01	5700	2/23	51	14.7	0.0	12.9
Mutton Creek No. 2	19A04	6000	2/23	45	12.8	0.6	13.3
Mutton Creek No. 2SP	19A11SP	6000	2/23	-	15.0	0.0	New
New Copper Mountain	46A-Can	4300	2/23	26	5.5	1.2	5.7*
New Penticton Res. #2	183-Can	5225	2/28	34	9.1	3.6	8.1*
Nickel Plate Mtn.	47-Can	6200	2/26	27	8.3	4.7	7.2*

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Average #
OKANOGAN RIVER (Cont.)							
Oyama Lake	203-Can	4400	2/27	30	8.0	3.7	6.7*
Paysayten +	20A28a	4300	3/1	54	16.2	6.9	15.4
Postill Lake	55-Can	4500	2/28	32	8.5	4.9	7.5*
Quartette Lake	34-Can	4000	2/23	31	9.8	2.0	8.7*
Rusty Creek	19A03	4000	2/23	33	9.7	0.0	7.1
Salmon Meadows	19A02	4500	2/23	41	11.2	0.0	9.9
Silver Star Mountain	99-Can	6050	2/25	73	28.9	14.3	24.3*
Starvation Mtn +	19A10a	6750	3/1	67	20.1	6.0	18.3
Summerland Reservoir	3A-Can	4200	2/25	35	10.6	3.8	9.0*
Touts Coulee	19A06	2845	2/23	15	4.5	0.3	4.0
Trout Creek	3-Can	4700	2/25	30	8.1	2.7	6.6*
Vaseux Creek	233-Can	4600	2/28	27	5.3	2.8	7.0*
White Rocks Mountain	70-Can	6000	2/28	63	26.9	7.1	19.5*
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	3/1	Not Measured		-	25.8
Dollar Watch +	20A29a	7000	3/1	Not Measured		-	25.8
Harts Pass	20A05A	6500	2/25	100	41.8	12.3	38.8
Horseshoe Basin +	19A05a	7000	3/1	Not Measured		-	11.6
Loup Loup	19A07	4650	2/24	37	10.9	0.4	9.5
Mutton Creek No. 1	19A01	5700	2/23	51	14.7	0.0	12.9
Mutton Creek No. 2	19A04	6000	2/23	45	12.8	0.6	13.3
Mutton Creek No. 2 SP	19A11SP	6000	2/23	-	15.0	0.0	New
Rusty Creek	19A03	4000	2/23	33	9.7	0.0	7.1
Salmon Meadows	19A02	4500	2/23	41	11.2	0.0	9.9
War Creek Pass +	20A31a	6500	3/1	Not Measured		-	40.5
CHELAN LAKE BASIN							
Cloudy Pass +	20A22a	6500	3/1	138	56.6	11.2	37.4
Greenwood Flat +	20A25a	3540	3/1	Not Measured		-	22.9
Little Meadows +	20A24a	5275	3/1	125	51.2	11.2	39.9
Lyman Lake	20A23A	5900	3/1	Not Measured		19.7	52.5
Park Creek Flat +	20A13a	2220	3/1	Not Measured		-	31.4
Park Creek Ridge	20A12A	4600	3/1	124	50.8	11.0	41.9
Petersons +	20A16a	3730	3/1	Not Measured		10.5	32.9
Rainy Pass	20A09	4780	2/25	100	41.1	12.3	36.0
Safety Harbor	20A30A	6300	3/1	Not Measured		-	25.7
War Creek Pass +	20A31a	6500	3/1	Not Measured		-	40.5

\# average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
ENTIAT RIVER							
Blue Creek G.S.	20B28a	5425	2/24	120	49.2	13.4	New
Brief	20B19	1600	2/25	26	9.9	0.0	7.5
Entiat Meadows +	20A33a	4540	2/24	126	51.7	14.7	45.7
Entiat River Trail +	20A34a	3325	2/24	82	29.5	10.6	21.8
Four Mile Ridge +	20B27a	6800	2/24	98	40.2	3.8	-
Fox Camp +	20A36a	6510	2/24	170	69.7	19.2	54.6
Pope Ridge	20B20	3540	2/28	69	24.8	2.1	16.5
Pugh Ridge +	20A32a	6725	2/24	99	40.6	7.4	34.5
Shady Pass	20A37	6200	2/27	85	34.4	4.4	-
Snow Brushy +	20A35a	3910	2/24	129	46.4	12.5	37.7
Tommy Creek +	20B21a	4900	2/24	80	32.8	3.2	28.3
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	2/14	70	28.0	2.8	23.9
			2/27	70	27.7	4.5	24.7
Berne-Mill Creek New SP	21B41	3240	2/27	56	23.2	2.9	21.0
Blewett Pass No. 2	20B02	4270	2/27	50	16.8	1.9	14.9
Chiwaukum G. S.	20B16	1810	2/14	33	12.4	2.7	11.2
			2/27	32	11.6	2.9	11.6
Fish Lake	21B04	3371	2/24	73	28.5	7.1	31.3
Lake Wenatchee	20B05	1970	2/14	44	16.9	3.2	13.6
			2/27	43	17.0	3.7	13.9
Leavenworth R.S.	20B17	1127	2/10	15	6.4	0.0	5.7
			2/27	7.6	3.3	0.0	4.2
Lyman Lake	20A23A	5900	3/1	Not Measured		19.7	52.5
Merritt	20B18	2140	2/14	50	19.6	2.5	15.5
			2/27	47	19.1	2.8	15.2
Stevens Pass	21B01	4070	2/14	112	45.2	6.8	42.5
			2/27	110	45.7	11.7	45.7
Stevens Pass Sand Shed	21B45	3700	2/14	86	33.6	2.6	-
			2/27	81	33.5	4.4	-
SQUILCHUCK CREEK							
Beehive Springs	20B03	4400	2/27	38	11.8	0.0	7.9
Scout-A-Vista	20B04	3400	2/27	40	12.7	0.0	8.1
STEMILT CREEK							
Jump-Off	20B08	4450	2/28	45	14.0	0.0	8.3
Stemilt Slide	20B06	5000	2/27	52	17.4	0.0	15.1
Upper Wheeler	20B07	4400	2/27	37	12.3	0.0	10.1

\# Average based on 1958-72 average

\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973.

SNOW DATA TO MARCH 1, 1978 - APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR: Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD: Water Content (inches) Last Year	Average #
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	2/28	47	16.0	0.0	-
Colockum Creek Lower	20B23	4300	2/28	43	13.3	0.0	-
Trough # 2	20B25SP	5310	2/28	56	19.0	0.0	New
YAKIMA RIVER							
Ahtanum R. S.	21C11	3100	2/24	34	9.0	0.5	6.7
Big Boulder Creek	21B09	3200	2/24	40	15.3	2.0	18.5
Blewett Pass No. 2	20B02	4270	2/27	50	16.8	1.9	14.9
Bumping Lake	21C08	3450	2/15	41	12.8	0.0	15.2
			2/28	40	14.1	0.0	15.3
Bumping Lake New	21C36	3400	2/15	48	15.6	0.0	19.6
			2/28	50	16.8	1.0	20.0
Cayuse Pass	21C06	5300	3/1	Not Measured		11.4	70.4
Colockum Pass	20B09	5370	2/23	56	22.0	0.0	14.5
Cooke Creek	20B10	4123	2/23	19	6.4	0.0	6.1
Corral Pass	21B13	6000	2/27	77	30.0	3.9	34.3
Fish Lake	21B04	3371	2/24	73	28.5	7.1	31.3
Green Lake	21C10	6000	2/24	82	32.2	3.8	29.1
Grouse Camp	20B11	5385	2/24	56	19.5	1.2	15.3
High Creek	20B12	2930	2/24	20	6.9	0.0	5.2
Joe Lake +	21B46a	4624	3/1	Not Measured		18.0	-
Lake Cle Elum	21B14M	2200	2/15	22	7.2	0.0	8.2
			3/1	21	7.0	0.9	8.1
Lemah Creek +	21B47a	3327	2/27	99	37.6	6.0	-
Manashtash	20C01	3935	2/27	23	8.5	0.0	4.3
Morse Lake	21C17	5400	2/27	127	50.8	7.7	47.7
Nanum	20B13	3875	2/24	25	8.3	0.3	9.6
Olallie Meadows	21B02	3625	2/27	59	23.3	3.8	40.6
Satus Pass	20D01	4030	2/27	31	8.5	1.2	8.7
Stampede Pass SP	21B10	3860	2/15	85	41.6	4.0	34.2
			3/1	85	40.3	5.8	36.2
Trail Creek	20B14	3360	2/24	Patches	0.0	0.0	2.2
Tunnel Avenue	21B08	2450	2/13	42	13.6	0.0	20.1
			2/27	41	14.1	1.2	21.2
Van Epps Pass +	20B26a	5925	2/27	102	38.8	14.6	-
Walters Flat	20B15	3360	2/24	23	7.9	0.0	6.9
Waptus Lake +	21B49a	3024	2/27	81	30.8	8.0	-
White Pass (E. Side)	21C28	4500	2/14	53	17.0	0.0	20.8
			3/3	58	18.4	1.4	22.0
AHTANUM CREEK							
Ahtanum R.S.	21C11	3100	2/24	34	9.0	0.5	6.7
Green Lake	21C10	6000	2/24	82	32.2	3.8	29.1

\# Average based on 1958-72 average

\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
L O W E R C O L U M B I A D R A I N A G E							
ASOTIN CREEK							
Spruce Springs	17C04	5700	2/25	50	16.8	2.0	23.6
MILL CREEK							
Homestead	17C01	4030	2/21	15	5.9	0.0	7.4
Martin Springs	17C02	4400	2/21	28	8.7	0.5	11.9
Tollgate	18D3M	5070	2/28	30	10.2	3.1	21.1
KLICKITAT RIVER							
Satus Pass	20D01	4030	2/27	31	8.5	1.2	8.7
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	2/27	99	35.6	4.4	40.5
Surprise Lakes	21C13A	4250	2/27	98	36.0	3.2	44.2
WIND RIVER							
Old Man Pass	21D19	3100	2/27	22	5.9	0.8	17.2
LEWIS RIVER							
Blue Lake +	21C22a	4800	2/27	164	60.7	10.5	69.7
Bob's Trail	21C21	2200	2/23	0	0.0	0.0	14.2
Calamity Ridge +	22D01a	2500	2/27	0	0.0	0.1	6.7
Council Pass +	21C18a	4200	2/27	78	28.9	3.1	37.1
Cultus Creek	21C12	4000	2/27	99	35.6	4.4	40.5
Divide Meadow +	21C29a	5600	2/27	100	37.0	5.5	50.9
Grand Meadow	21C25	3500	2/23	34	12.1	1.1	23.8
Lone Pine Shelter	21C26	3800	2/23	50	19.0	2.3	35.0
Marble Mountain +	22C05a	3200	2/23	30	12.0	1.1	31.4
New Muddy River	22C06	2000	2/23	0	0.0	0.0	10.6
Old Man Pass	21D19	3100	2/27	22	5.9	0.8	17.2
Plains of Abraham +	22C01a	4400	2/23	140	51.8	4.6	58.5
Smith Creek Road	22C04	2100	2/23	0	0.0	0.0	17.2
Spencer Meadow +	21C20a	3400	2/23	10	3.6	1.1	21.5
Surprise Lakes	21C13A	4250	2/27	98	36.0	3.2	44.2
Table Mountain +	21C24a	4200	2/27	100	37.0	3.6	41.7
Timbered Peak +	21D18a	3000	2/27	6	1.6	0.8	16.0

\# Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 7

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
COWLITZ RIVER							
Cayuse Pass	21C06	5300	3/1	Not Measured		11.4	70.4
Plains of Abraham +	22C01a	4400	2/23	140	51.8	4.6	58.5
White Pass (E. Side)	21C28	4500	2/14	53	17.0	0.0	20.8
			3/3	58	18.4	1.4	22.0
PUGET SOUND DRAINAGE							
WHITE RIVER							
Cayuse Pass	21C06	5300	3/1	Not Measured		11.4	70.4
Corral Pass	21B13	6000	2/27	77	30.0	3.9	34.3
Morse Lake	21C17	5400	2/27	127	50.8	7.7	47.7
GREEN RIVER							
Airstrip	21B24	1800	3/1	2.7	0.3	0.0	4.4
Charley Creek	21B25	1200	3/1	0	0.0	0.0	1.2
Cougar Mountain SP	21B42SP	3200				0.0	-
Grass Mtn. No. 2	21B27	2900	3/1	12	1.8	0.0	19.4
Grass Mtn. No. 3	21B28	2100	3/1	4.1	0.4	0.0	5.7
Lester Creek	21B29	3100	3/1	39	9.9	1.9	21.3
Lynn Lake	21B50	4000	3/1	17	4.3	0.3	-
Sawmill Ridge	21B31	4700	3/1	67	23.0	3.7	34.1
Snowshoe Butte SP	21B43SP	5000	2/27	92	38.0	5.6	-
Stampede Pass SP	21B10	3860	2/16	85	41.6	4.0	34.2
			2/27	85	40.3	5.8	36.2
Twin Camp	21B30	4100	3/1	Not Measured		0.3	21.6
CEDAR RIVER							
City Cabin	21B03	2390	2/27	3	0.9	0.9	13.5
Mt. Gardner	21B21	3300	2/24	0	0.0	0.4	15.6
Mt. Lindsay	21B16	2500	2/24	0	0	0.6	12.8
Mt. Washington New	21B15	3000	2/24	0	0.0	0.5	-
Rex River	21B17	2400	2/24	0	0.0	0.6	8.9
S. F. Cedar	21B06	3000	2/24	10	3.6	0.3	17.3
Tinkham Creek	21B20	3400	2/27	24	7.7	0.8	20.0
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	2/27	47	20.0	4.1	-
Lake Elizabeth	21B19	2900	2/28	59	21.0	2.6	36.4
Olallie Meadows	21B02	3625	2/27	59	23.3	3.8	40.6
S. F. Tolt	21B18	1900	2/27	0	0.0	0.0	2.7

Average based on 1958-72 average

\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 8

SNOW

DRAINAGE BASIN and or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	2/28	59	21.0	2.6	36.4
Stevens Pass	21B01	4070	2/14	112	45.2	6.8	42.5
			2/27	110	45.7	11.7	45.7
Stevens Pass Sand Shed	21B45	3700	2/14	86	33.6	2.6	-
			2/27	81	33.5	4.4	-
SKAGIT RIVER							
Beaver Creek Trail	21A04	2200	2/24	34	12.4	0.0	13.0
Beaver Pass	21A01	3680	2/24	59	23.6	1.2	28.3
Brown Top +	21A28a	6000	2/24	122	50.0	16.0	-
Cloudy Pass	20A22a	6500	3/1	114	46.7	11.2	37.4
Devils Park	20A04A	5900	2/24	95	39.2	12.6	39.4
Freezeout Creek Trail	20A01	3500	2/24	31	10.0	0.6	11.8
Freezeout Meadows New	20A38	5000	2/24	60	22.4	12.4	25.7
Granite Creek	21A29	3500	2/25	42	14.9	4.7	-
Harts Pass	20A05A	6500	2/25	100	41.8	12.3	38.8
Klesilkwa	35B-Can	3700	2/24	26	10.0	0.3	12.8*
Lyman Lake +	20A23A	5900	3/1	Not Measured		19.7	52.5
Meadow Cabins	20A08	1900	2/24	17	6.2	0.0	6.8
New Hozomeen Lake	21A30	2800	2/24	28	8.8	0.0	-
New Tashme	26A-Can	2500	2/28	28	9.6	1.5	11.3*
Quartette Lake	34-Can	4000	2/23	31	9.8	2.0	8.7*
Rainy Pass	20A09	4780	2/25	100	41.1	12.3	36.0
Thunder Basin	20A07	4200	2/24	48	17.2	4.2	19.8
BAKER RIVER							
Baker Pass +	21A27a	4900	2/15	Marker Missing		-	-
			3/1	Marker Missing		29.0	-
Dock Butte	21A11A	3800	2/11	120	38.0	-	58.4
			2/24	94	38.0	16.0	61.3
Easy Pass	21A07A	5200	2/11	156	62.0	18.8	64.3
			2/24	142	57.0	17.0	72.0
Jasper Pass	21A06A	5400	2/11	169	68.0	23.0	72.3
			2/24	160	64.0	26.0	82.8
Marten Lake	21A09A	3600	2/11	121	48.0	17.5	59.4
			2/24	112	45.0	19.0	67.6
Mount Blum +	21A18a	5800	2/11	126	50.0	-	49.6
			2/24	121	48.0	20.0	58.2
Panorama New	21A26	4300	2/13	117	48.4	9.5	-
			2/26	109	49.1	14.0	-
Rocky Creek	21A12A	2100	2/11	30	12.0	5.0	-
			2/24	18	7.0	-	25.4

\# Average based on 1958-72 average.
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

SCS PORTLAND OREGON 1973

SNOW DATA TO MARCH 1, 1978 - APPENDIX 9

SNOW

DRAINAGE BASIN and or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	Average #
BAKER RIVER (Cont.)							
Schreibers Meadow	21A10A	3400	2/11	89	36.0	-	47.6
			2/24	70	28.0	10.0	53.8
S. F. Thunder Creek	21A14A	2200	2/11	0	0.0	-	4.9
			2/24	0	0.0	-	8.1
Watson Lakes	21A08A	4500	2/11	101	40.0	-	49.2
			2/24	95	38.0	-	57.6
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	2/27	66	27.7	18.6	42.9
Canyon +	21A20a	5100	3/1	Not Measured		29.1	48.3
Glacier Creek	21A23	3700	2/26	24	9.4	1.6	21.6
Panorama New	21A26	4300	2/13	117	48.4	9.5	-
			2/26	109	49.1	14.0	-
Twin Lakes +	21A21a	5200	3/1	Not Measured		27.3	62.3
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B04	5200	2/27	38	13.2	1.7	19.6
MORSE CREEK							
Cox Valley	23B14	4500	2/24	70	27.4	6.3	-
ELWHA RIVER							
Hurricane	23B03	4500	2/24	35	11.2	2.0	20.0

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
  Corps of Engineers
U. S. Department of Agriculture
  Forest Service
U. S. Department of Commerce
  NOAA, National Weather Service
U. S. Department of the Interior
  Bonneville Power Administration
  Bureau of Reclamation
  Geological Survey
  National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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"The Conservation of Water begins with the Snow Survey"

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WATER SUPPLY OUTLOOK FOR WASHINGTON

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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
APR. 1, 1978

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountoin snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevodo	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA-SCS-PORTLAND, OR 1977

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R.M. DAVIS

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C

Released by

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SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

WILBUR G. HALLAUER

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

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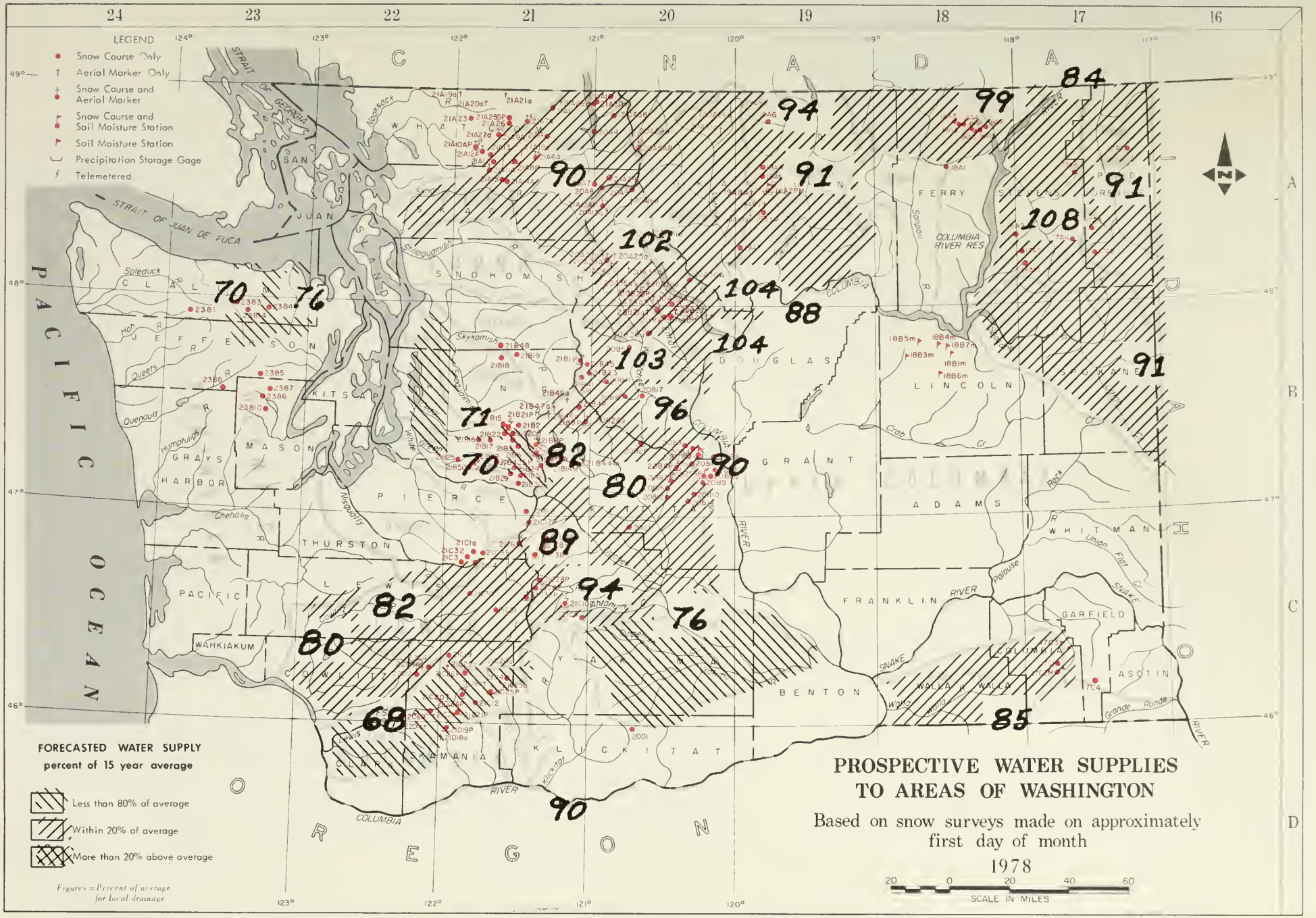
and
NORINE P. KENT, Statistical Assistant

SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201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Soil Moisture Station
Precipitation Storage Gage
Telemetered
FORECASTED WATER SUPPLY
percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON
Based on snow surveys made on approximately first day of month
1978
SCALE IN MILES
CANADA
PACIFIC OCEAN
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
KING
KITSAP
CLALLAM
JEFFERSON
GRAYS HARBOR
MASON
PIERCE
THURSTON
LEWIS
PACIFIC
WAHKIAKUM
CLARK
SKAMANIA
KLICKITAT
YAKIMA
BENTON
FRANKLIN
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FERRY
STEVENS
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OKANOGAN
COLUMBIA
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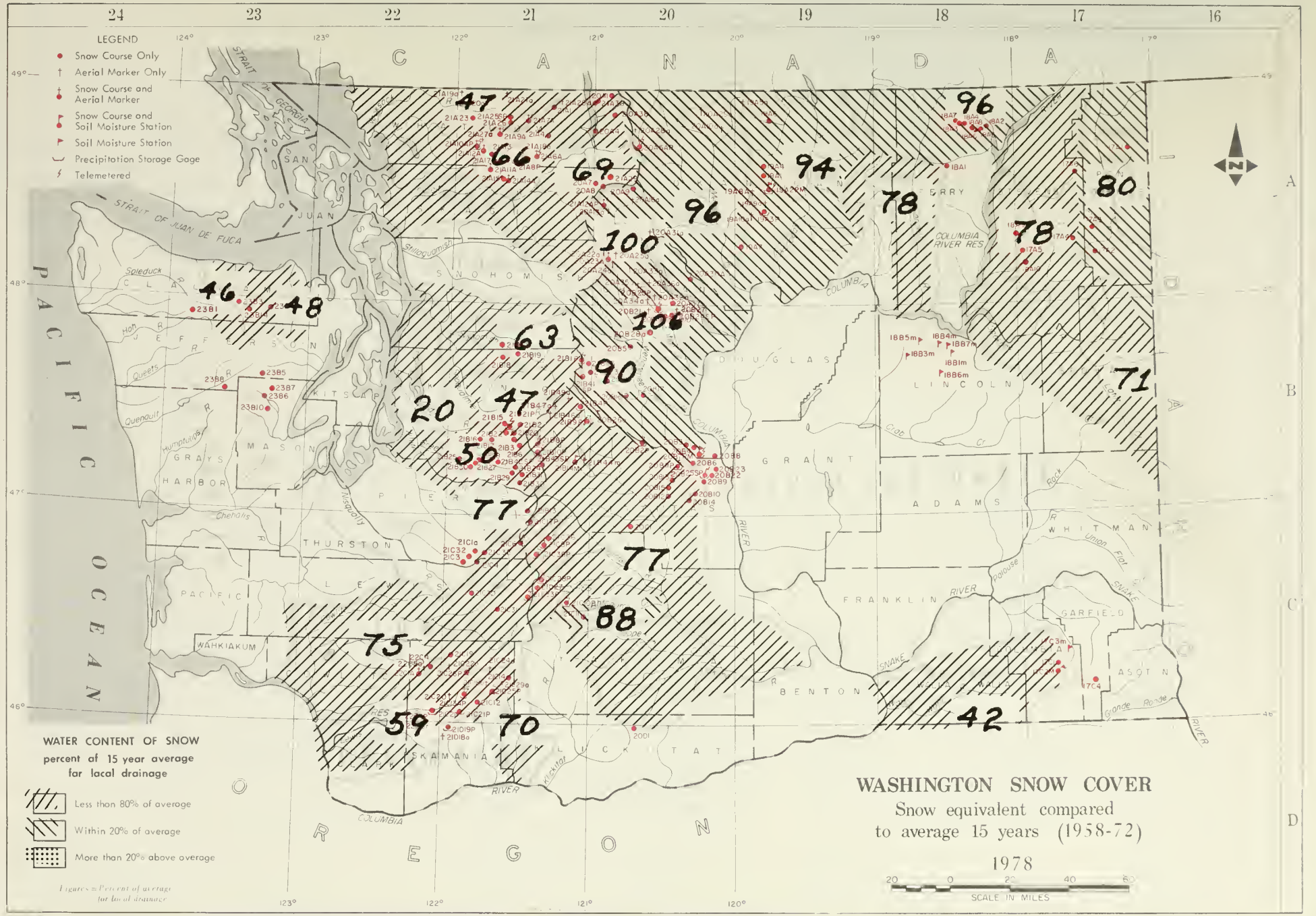
INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okonogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A2Ba	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelon Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Blue Creek G.S.	20B2Ba	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Wenatchee River (continued)					
Trough #2	20825SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20822	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crob Creek					
Creston-Kunz	1881m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3021
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	2001	21	6N	17E	4030
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250
PUGET SOUND DRAINAGE					
Nisquolly River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B4B	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksock River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwho River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	2381	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Markers Only
21A7A	Snow Course and Aerial Markers
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow


LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
47
66
69
96
94
78
80
96
100
78
46
48
106
63
90
71
20
47
50
77
77
88
75
59
70
42
WASHINGTON SNOW COVER
Snow equivalent compared to average 15 years (1958-72)
1978
SCALE IN MILES
PACIFIC OCEAN
OREGON
CANADA
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
SKAGIT
SNOHOMIS
KITSAP
JEFFERSON
CLALLAM
GRAYS HARBOR
MASON
PIERCE
THURSTON
LEWIS
WAHKIAKUM
SKAMANIA
KLICKITAT
YAKIMA
BENTON
FRANKLIN
GRANT
ADAMS
WHITMAN
ASOTIN
GARFIELD
COLUMBIA
DOUGLAS
LINCOLN
OKANOGAN
FERRY
COLUMBIA RIVER RES
Soleduck R
Hoh R
Queets R
Quinault R
Humptulips R
Chehalis R
Nisqually R
Stillaguamish R
Skagit R
Cowlitz R
Lewis R
Kalama R
Wind R
White Salmon R
Klickitat R
Yakima R
Snake R
Palouse R
Union Flat Cr
Rock Cr
Crab Cr
Grande Ronde R
COLUMBIA RIVER
SNAKE RIVER
Mt Rainier
Mt St Helens
Mt Adams
Mt Hood
Mt Jefferson
Mt Bachelor
Three Sisters
Diamond Peak
Crater Lake
Mt Shasta
Mt Lassen
Mt Thielsen
Mt Scott
Mt McLoughlin
Mt Pitt
Mt Ashland
Mt Eddy
Mt Shasta
Mt Lassen
Mt Thielsen
Mt Scott
Mt McLoughlin
Mt Pitt
Mt Ashland
Mt Eddy

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Collar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Creenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21841SP	13	26N	14E	3240
Blewett Pass No. 2	2082P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	2181P	14	26N	13E	4070
Stevens Pass Sand Shed	21845	12	26N	19E	3700
Wenatchee River (continued)					
Trough #2	20B25SP	10	20N	20L	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20823	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	2083	12	21N	19L	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	2088	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	2189P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21844m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19L	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	5875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11L	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19L	3360
Waptus Lake	21B49a	12	23N	13L	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5L	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10L	4500
Willame Creek	21C30	3	13N	8E	3250
PUGET SOUND DRAINAGE					
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21829	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21843SP	14	20N	11E	5000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21830	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21822	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A2Ba	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	5500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	SW	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	2383	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	2381	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington

April 1, 1978

There has been a general decrease of the snow pack from that which has been previously reported. April 1 generally is the date when maximum snow water equivalent is measured over 90 percent of the snow courses. A few low elevation courses have March 1 maximums and a couple of high elevation courses have a May 1 maximum. This year the maximum occurred on March 1. Only a couple of high elevation snow courses showed an increase from that which occurred last month. The end result of this lack of input during the month is a general reduction of water supply forecasts from that reported last month. This reduction has been from 5 to 15 percent throughout the state. Precipitation was above normal only in the Upper Columbia Drainage and along the east side of the Cascades. The east side rainfall was only 2 percent above normal while the Upper Columbia was 10 percent above. Runoff was generally well above normal over most of the state with a few low elevation watersheds reporting subnormal outflows. Several of the watersheds, mainly on the west side of the Cascades and on the Olympic Peninsula, have less snow pack this year as of April 1 than occurred last year at this time.

SNOW COVER

There are only two basins in the state and tributary areas that have normal or above snow packs as of April 1. These two drainages are the Chelan and Entiat on the east side of the Cascades. Snow packs in the Upper Columbia Drainage range from a low of 29 percent below normal to 6 percent above. Along the Lower Columbia Drainage, the snow cover ranges from 58 percent below normal on the Mill Creek Drainage to 25 percent below normal for the Cowlitz River. The Puget Sound Drainage has a snow cover, as of April 1, that ranges from 80 percent below average to 23 percent below normal. On the Olympic Peninsula, the snow pack in this area ranges from 54 to 52 percent below average. Most drainages do have more snow this year than last year at this time although, as stated above, the Cedar, Snoqualmie, and Nooksack on the Puget Sound Drainage, the Elwha and Dungeness on the Olympic Peninsula, and the Mill Creek on the Lower Columbia have less than last years record low snow packs.

RESERVOIRS

Most of the reservoirs are in good shape as of April 1. The five Yakima irrigation reservoirs have 20 percent more water in storage than normal for this time of year. Lake Roosevelt has 1 percent above average water while Ross has 5 percent below normal. The Chelan Lake has water in storage that is 13 percent below normal. The two small reservoirs in the Okanogan Drainage, Conconully and Salmon, are in sad shape and these reservoirs will fill only with perfect weather conditions, that is, well above normal rainfall in the area above them.

PRECIPITATION

Rainfall during the month ranged from 50 percent below normal in the Pend Oreille-Spokane Drainage to 10 percent above normal in the Upper Columbia above Castlegar. The winter precipitation, November through March, now ranges from 14 percent below normal for the Upper Columbia Drainage to a high of 43 percent above for the central Washington drainage division, this as reported by the National Weather Service. The Bureau of Reclamation reports precipitation at their five irrigation reservoirs to be 79 percent of normal during the month of March and 10 percent above normal since September 1.

STREAMFLOW

Flows were generally above normal, ranging from 38 percent below normal for the Cowlitz River at Castlerock to a high of 44 percent above normal for the Chelan River, adjusted for storage. Generally, it was the low elevation watersheds that had the poorer runoffs. Streamflow forecasts have been reduced from that reported last month and now range from a low of 35 percent below normal to a high of 8 percent above. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - March, 1978

The following summarized runoff forecasts are based principally on mountain snowcover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1977 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet: % 15-Yr. Avg.	Forecast period	1977	1976	1975	15-Yr. Average 58-72
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM **							
Columbia River at Birchbank 1/	38900	84	Apr-Sept	31583	53937	41101	46410
	31500	84	Apr-July	23839	38979	32944	37548
	23100	84	Apr-June	18040	26054	22429	27549
Columbia River at Grand Coulee 1/	60400	88	Apr-Sept	41805	80974	66501	69020
	51100	87	Apr-July	32813	62715	55870	58368
	40200	87	Apr-June	26413	46556	41377	46049
Columbia River bl. Rock Island Dam 1/	67800	90	Apr-Sept	43659	86849	73553	75290
	57700	90	Apr-July	34392	67890	62727	64181
	45500	90	Apr-June	27740	50520	46759	50594
Columbia River at The Dalles, Or 1/	93700	90	Apr-Sept	54130	122876	108901	104600
	80700	90	Apr-July	42939	99965	94195	89875
	65800	90	Apr-June	35577	79164	73012	73143
PEND OREILLE RIVER SYSTEM **							
Pend Oreille River bl. Box Canyon	14500	91	Apr-Sept	6041	17638	16946	15950
	13300	91	Apr-July	5312	15979	15271	14677
	11600	91	Apr-June	4816	13687	11814	12767
KETTLE RIVER SYSTEM							
Kettle River nr. Laurier	1850	99	Apr-Sept	1145	2434	1860	1873
	1770	99	Apr-July	1105	2112	1779	1794
	1650	101	Apr-June	1037	1826	1592	1640
Colville River at Kettle Falls	160	108	Apr-Sept		123	225	148
	140	102	Apr-July		106	203	137
	130	101	Apr-June		98	187	128

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr Average 58-72
SPOKANE RIVER SYSTEM***							
Spokane River	2750	91	Apr-Sept	1066	3215	3418	2982
at Post Falls, ID 2/	2660	92	Apr-July	1014	3069	3275	2899
	2540	92	Apr-June	960	2884	3033	2773
OKANOGAN RIVER SYSTEM **							
Similkameen River	1420	94	Apr-Sept	645	1944	1434	1516
nr. Nighthawk	1330	93	Apr-July	605	1720	1339	1424
	1140	93	Apr-June	547	1347	1092	1222
Okanogan River	1570	91	Apr-Sept	708	2185	1582	1723
nr. Tonasket	1440	91	Apr-July	644	1836	1437	1582
	1230	91	Apr-June	583	1382	1181	1349
METHOW RIVER SYSTEM **							
Methow River	1070	104	Apr-Sept		1205	992	1031
nr. Pateros	990	103	Apr-July		1047	911	963
	860	103	Apr-June		802	728	832
CHELAN RIVER SYSTEM							
Chelan River	1300	104	Apr-Sept	599	1466	1364	1253
at Chelan 3/	1130	102	Apr-July	481	1184	1210	1112
	880	100	Apr-June	403	836	858	881
Stehekin River	920	100	Apr-Sept	494	1010	1040	904
at Stehekin	780	100	Apr-July	382	787	796	776
	595	99	Apr-June	311	523	526	600
Entiat	260	109	Apr-Sept		310	268	239
nr. Ardenvoir	240	109	Apr-July		266	244	220
	200	111	Apr-June		190	182	180
WENATCHEE RIVER SYSTEM							
Wenatchee River	1350	103	Apr-Sept	633	1510	1396	1312
at Plain	1170	99	Apr-July	542	1263	1262	1187
	1000	105	Apr-June	479	891	924	956
Wenatchee River	1710	96	Apr-Sept	839	2074	1920	1786
at Peshastin	1660	102	Apr-July	730	1746	1738	1629
	1360	103	Apr-June	653	1238	1279	1324
Stemilt Basin	125*		May-Sept		144*	134*	138*
nr. Wenatchee							
Icicle Creek	360	97	Apr-Sept				371
nr. Leavenworth	330	97	Apr-July				342
	270	97	Apr-June				279

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

*** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
YAKIMA RIVER SYSTEM							
Yakima River	115	82	Apr-Sept	80	157	168	142
nr. Martin 4/	105	80	Apr-July	70	141	154	131
	95	82	Apr-June	67	117	127	116
Yakima River	775	80	Apr-Sept		1091	1112	968
at Cle Elum 5/	700	80	Apr-July		980	1012	877
	650	85	Apr-June		807	852	764
Yakima River	1640	76	Apr-Sept	802	2521	2610	2161
nr. Parker 6/	1470	75	Apr-July	657	2205	2367	1960
	1300	75	Apr-June	612	1810	2021	1739
Kachess River	95	76	Apr-Sept	60	142	154	125
nr. Easton 7/	85	72	Apr-July	55	131	145	118
	80	75	Apr-June	54	109	120	106
Cle Elum River	420	88	Apr-Sept	248	561	539	477
nr. Roslyn 8/	380	88	Apr-July	211	484	492	437
	330	89	Apr-June	192	370	388	372
Bumping River	130	89	Apr-Sept	65	175	179	146
nr. Nile 9/	120	89	Apr-July	60	152	163	134
	100	89	Apr-June	55	109	119	112
American River	115	91	Apr-Sept		132	149	128
nr. Nile	110	93	Apr-July		116	137	118
	95	95	Apr-June		86	104	100
Tieton River	230	94	Apr-Sept	123	302	299	247
at Tieton Dam 10/	190	90	Apr-July	94	242	253	211
	155	90	Apr-June	77	179	187	172
Naches River	800	90	Apr-Sept		1046	1054	889
nr. Naches 11/	720	89	Apr-July		908	952	810
	610	87	Apr-June		717	761	698
Ahtanum Creek	45	94	Apr-Sept		51	57	48
nr. Tampico 12/	40	91	Apr-July		45	51	44
	35	90	Apr-June		37	44	39

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes. and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, New Reservation, Sunnyside, Kittitas, and Tieton Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Seasonal Streamflow in Thousands of Acre-Feet Fore-cast period	1977	1976	1975	15-Yr. Average 58-72
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek	23	85	Apr-Sept		41	39	27
nr. Walla Walla	20	83	Apr-July		36	34	24
	17	81	Apr-June		32	30	21
Lewis River	900	68	Apr-Sept	1040	1285	1188	1319
at Ariel 13/	750	65	Apr-July	831	1130	1022	1151
	670	65	Apr-June	761	990	885	1028
Cowlitz River **	1720	82	Apr-Sept	1587	2296	2127	2101
bl. Mayfield Dam	1510	82	Apr-July		1963	1852	1846
	1290	82	Apr-June		1584	1451	1578
Cowlitz River **	2230	80	Apr-Sept	2172	2924	2646	2773
at Castle Rock 14/	1950	81	Apr-July	1778	2493	2278	2416
	1690	81	Apr-June	1603	2063	1816	2083
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	125	76	Apr-Sept		160	149	165
nr. Sequim	110	80	Apr-July		128	118	137
	80	77	Apr-June		91	82	104
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River at Newhalem 15/	2180	90	Mar-Aug		2841	2339	2418
ELWHA RIVER SYSTEM							
Elwha River	380	70	Apr-Sept		613	544	546
nr. Port Angeles	310	68	Apr-July		492	435	456
GREEN RIVER SYSTEM							
Green River bl. Howard Hanson Dam 16/	270	70	Mar-Sept		372	418	386
CEDAR RIVER SYSTEM							
Cedar River nr. Cedar Falls	65	71	Apr-Sept		91	101	91

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.
** Forecasts made by National Weather Service, River Forecast Center, Portland, OR
16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about April 1, 1978 as percent of the same date in 1977 and 1976 and average of record.

Tributary Basin	No. of Courses Average	Snow Water Expressed as percent of 1977	1976	1958-72 Avg.
UPPER COLUMBIA BASIN				
Pend Oreille	19	176	80	80
Kettle	16	173	82	96
Colville	4	174	84	78
Spokane	14	162	68	71
Sanpoil	1	202	99	78
Okanogan	38	223	94	94
Methow	9	435	122	96
Chelan	3	214	75	100
Entiat	11	297	88	106
Wenatchee	9	220	70	90
Yakima	19	232	74	77
Ahtanum	2	271	90	88
LOWER COLUMBIA				
Mill Creek	2	82	29	42
White Salmon	2	174	64	70
Lewis	10	130	53	59
Cowlitz	3	198	72	75
PUGET SOUND				
White	3	205	77	77
Green	5	133	43	50
Cedar	1	42	15	20
Snoqualmie	3	93	36	47
Skykomish	3	157	59	63
Skagit	16	162	48	69
Baker	8	139	52	66
Nooksack	5	94	48	47
OLYMPIC PENINSULA				
Elwha	1	84	36	46
Dungeness	1	92	-	48
Morse Creek	1	126	20	-

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured April 1 1978	1977	1976	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	277.8	30.3	118.3	174.1
Columbia	Franklin D. Roosevelt Lake	5232.0	1842.8	1673.1	1196.3	1821.8
Columbia	Banks Lake	714.9	682.9	566.1	704.2	581.4
Okanogan	Conconully Reservoir	13.0	4.2	8.8	11.3	11.8
Okanogan	Salmon Lake	10.5	6.2	9.3	9.8	7.5
Chelan	Lake Chelan	676.1	156.0	205.4	377.7	179.3
		YAKIMA				
Yakima	Keechelus Lake	157.8	158.0	91.0	129.1	107.8
Kachess	Kachess Lake	239.0	215.9	214.4	207.6	190.2
Cle Elum	Lake Cle Elum	436.9	315.0	431.0	321.9	283.2
Bumping	Bumping Lake	33.7	24.4	13.6	5.4	11.4
Tieton	Rimrock Lake	198.0	169.3	139.8	151.4	141.7
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	729.5	468.1	861.4	768.5
Skagit	Diablo Reservoir	90.6	86.8	87.1	89.9	85.5
Skagit	Gorge Reservoir	9.8	8.3	8.3	8.2	-

1/ Based on Active Storage

* 15-Year Average 1958-72

SOIL MOISTURE - April

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content Inches as of April 1 1978	1977	1976
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	-	2.0	3.4
Trout Creek	3-M	3600	48	7.3	-	3.4	-
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	-	-	-
Helmers	17C2M	4400	48	12.0	-	-	-
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	7.1	7.9	12.6

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1977	1976	1975
OKANOGAN							
Salmon Meadows	19A02M	4500	48	5.4	-	3.4	3.2
Trout Creek	3-M	3600	48	7.3	3.2	3.4	3.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	-	-	7.3
Helmers	17C2M	4400	48	12.0	-	-	6.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.6	-	8.6

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct Observed	FALL 1977 2/ Departure	WINTER Nov. 1977 - Mar. 1978 2/ Observed	WINTER Departure
Columbia in Canada	3.41	-1.61	13.30	-2.21
Pend Oreille - Spokane	4.10	+0.06	17.28	-0.27
Northeastern Washington	2.06	-0.41	10.62	+1.22
Southeastern Washington	2.51	0.0	11.25	+0.82
Central Washington	1.08	+0.11	7.55	+2.27
North Central Washington	1.39	-0.21	8.13	+1.59
Northwest Slope Cascades	11.16	-2.05	52.34	-3.05
Southwest Slope Cascades	9.42	+0.74	40.82	-0.82

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

1/

*

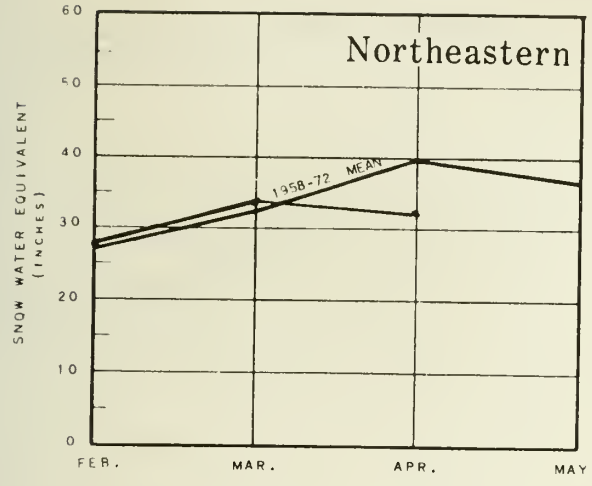
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

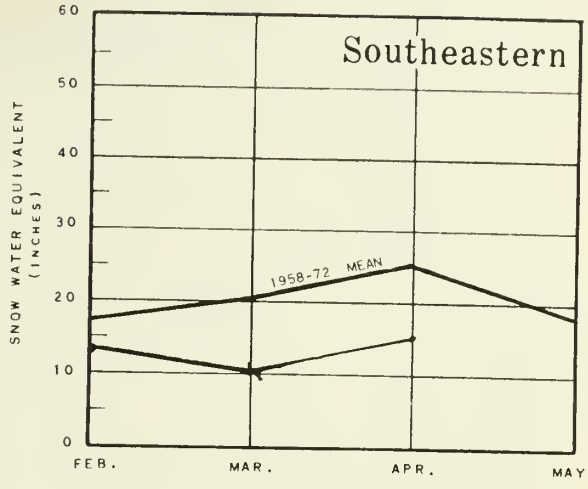
2/ - Departure from 15-year (1958-72) drainage division average.

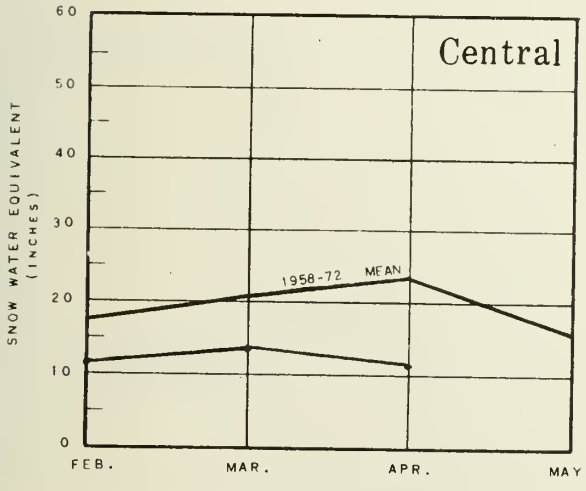
WASHINGTON SNOW COVER

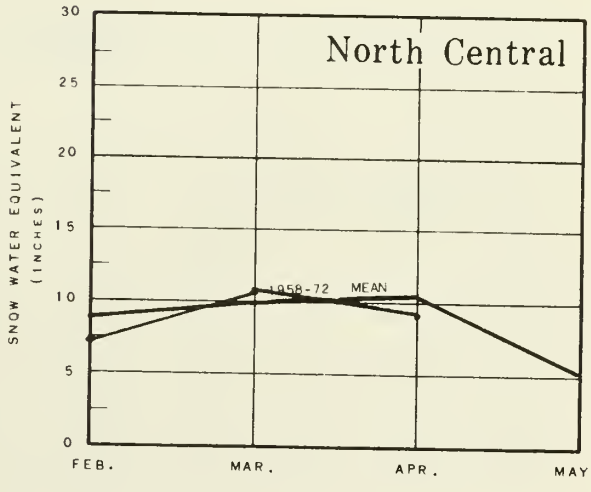
1978

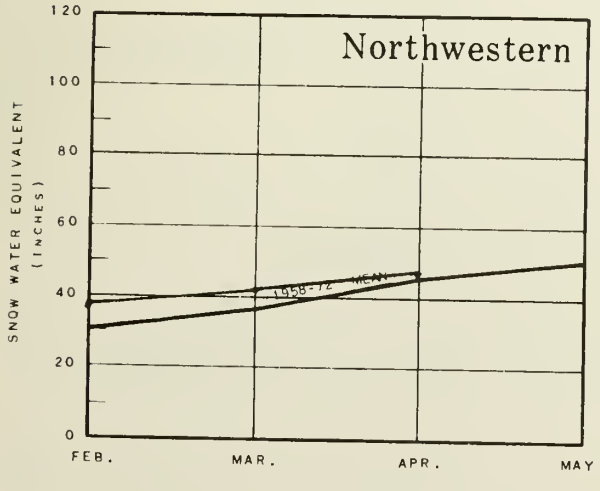
DRAINAGE AREAS

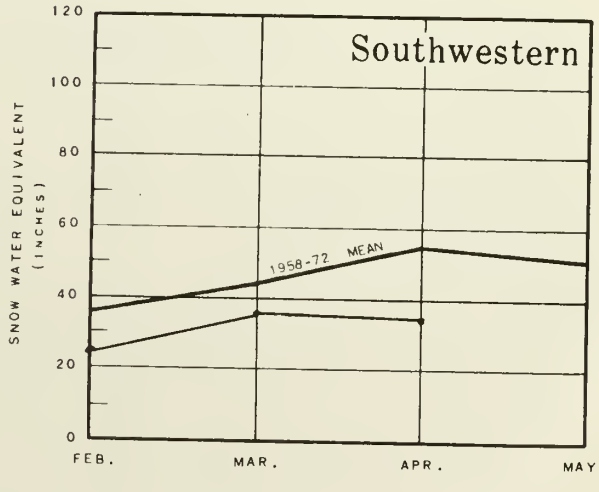










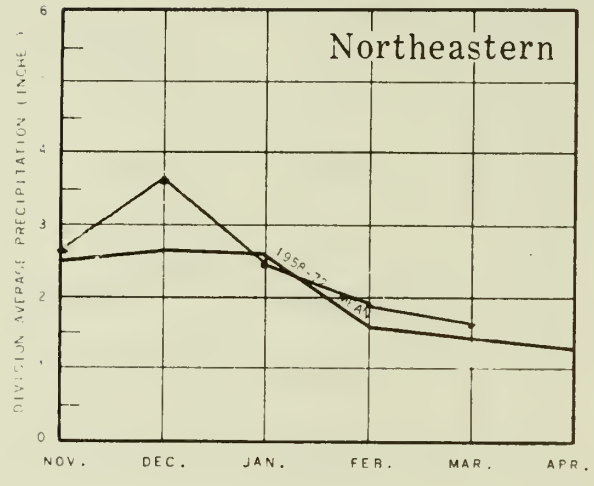


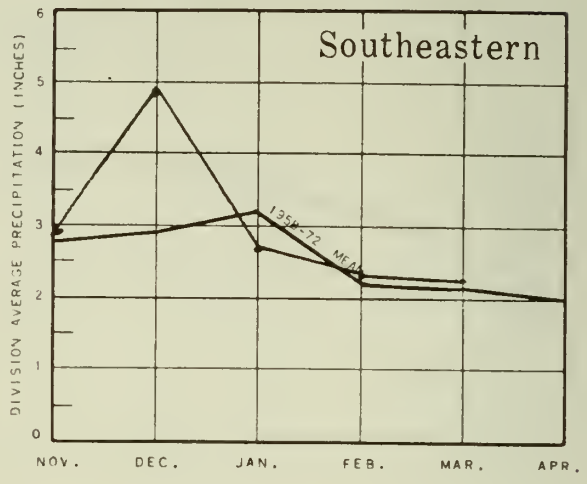
Selected Snow Survey Courses by Soil Conservation Service

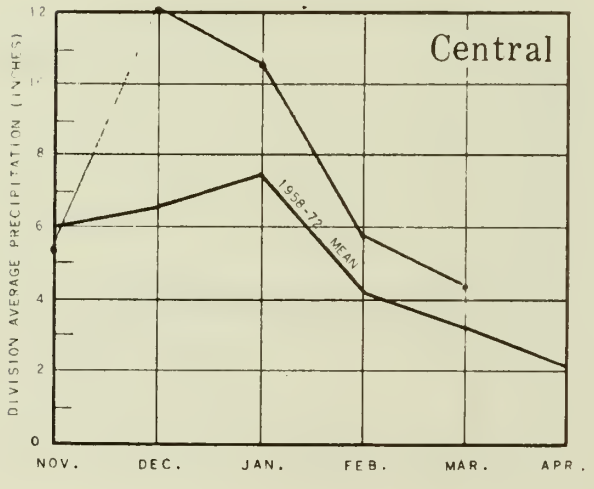
WASHINGTON VALLEY PRECIPITATION

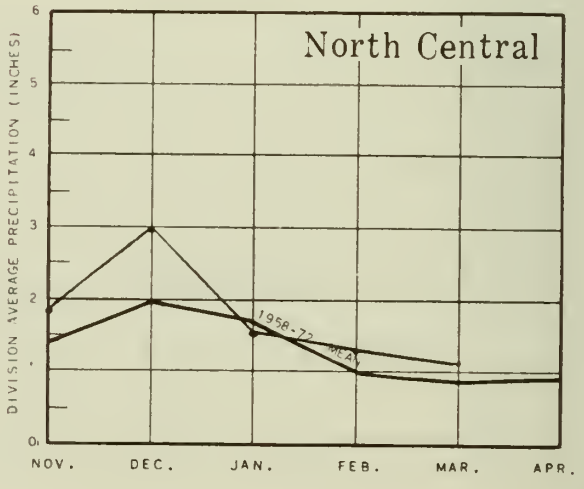
1977 - 1978

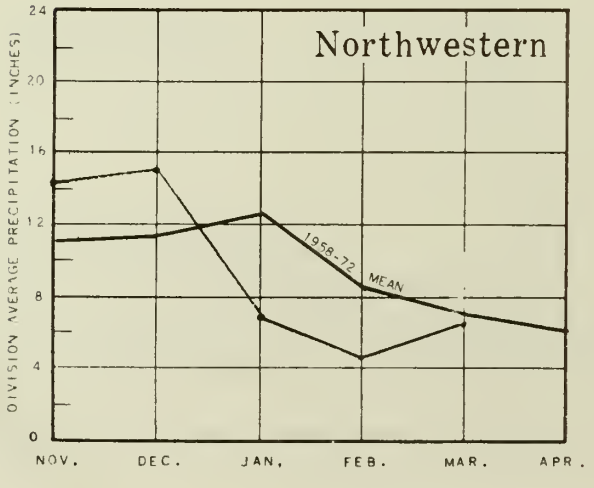
DRAINAGE AREAS

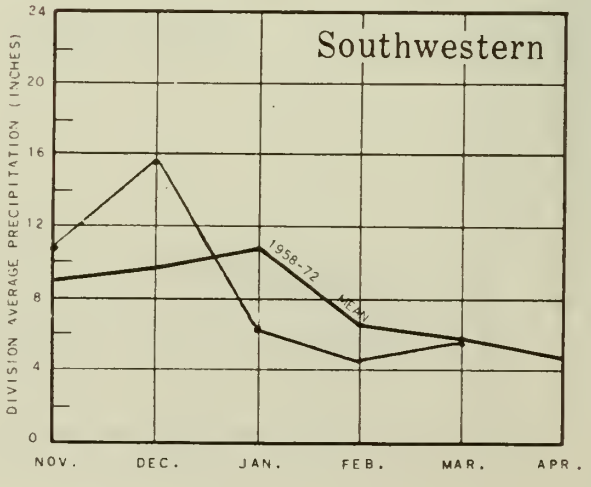












Preliminary Analysis by National Weather Service

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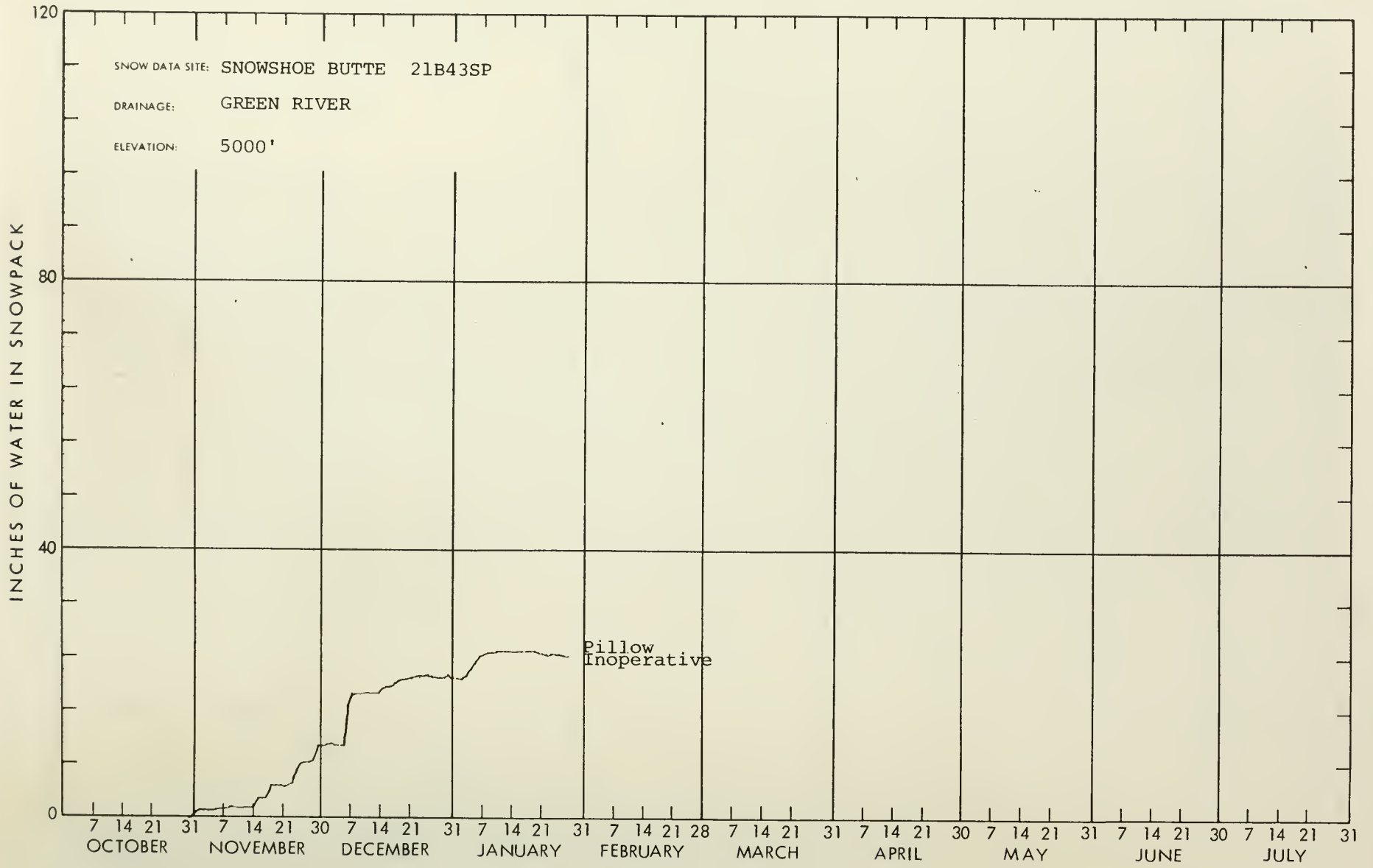
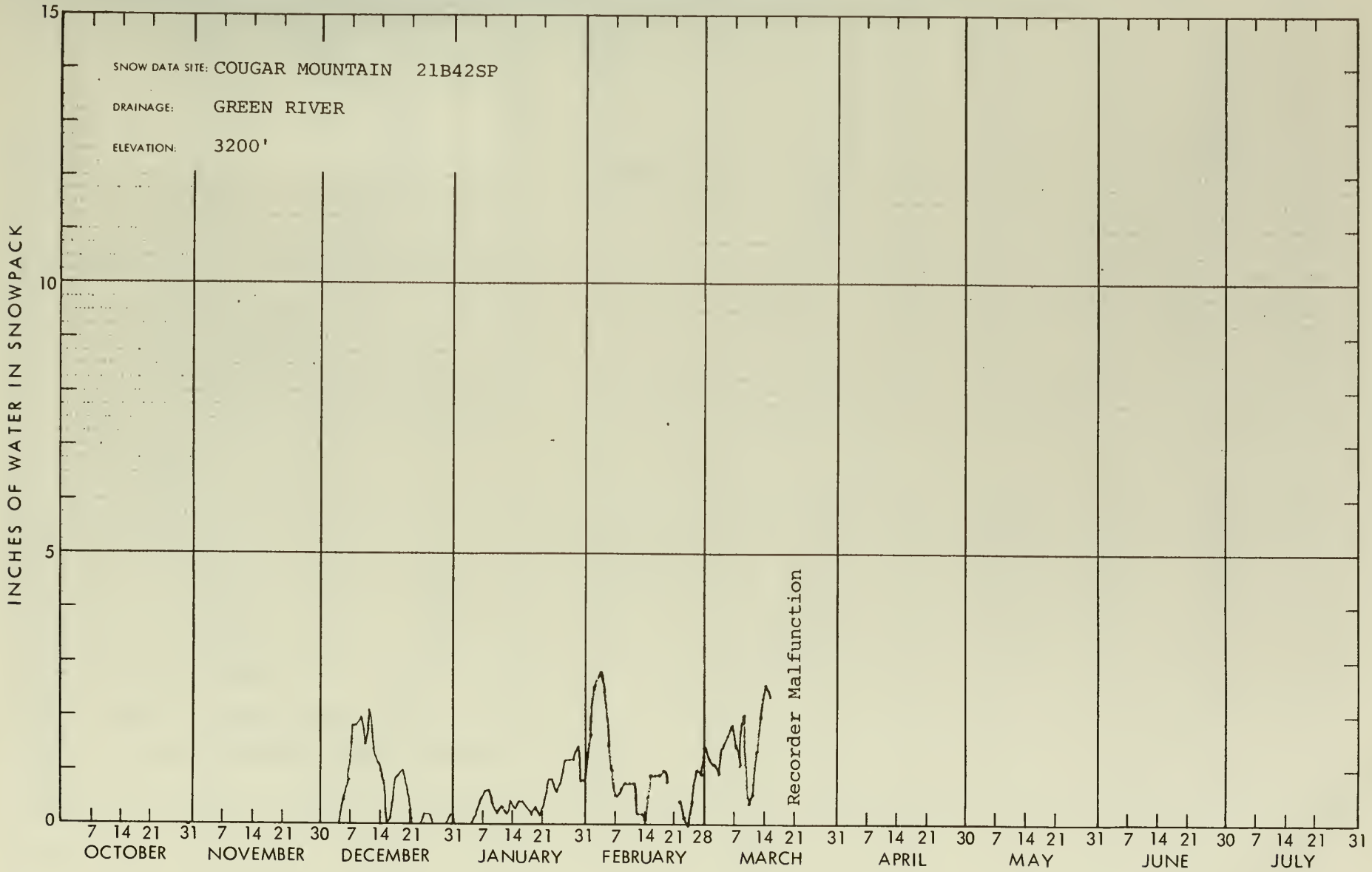

SNOW DATA SITE: SNOWSHOE BUTTE 21B43SP
DRAINAGE: GREEN RIVER
ELEVATION: 5000'
INCHES OF WATER IN SNOWPACK
120
80
40
0
Pillow Inoperative
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13A


SNOW DATA SITE: COUGAR MOUNTAIN 21B42SP
DRAINAGE: GREEN RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
Recorder Malfunction
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
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JANUARY
FEBRUARY
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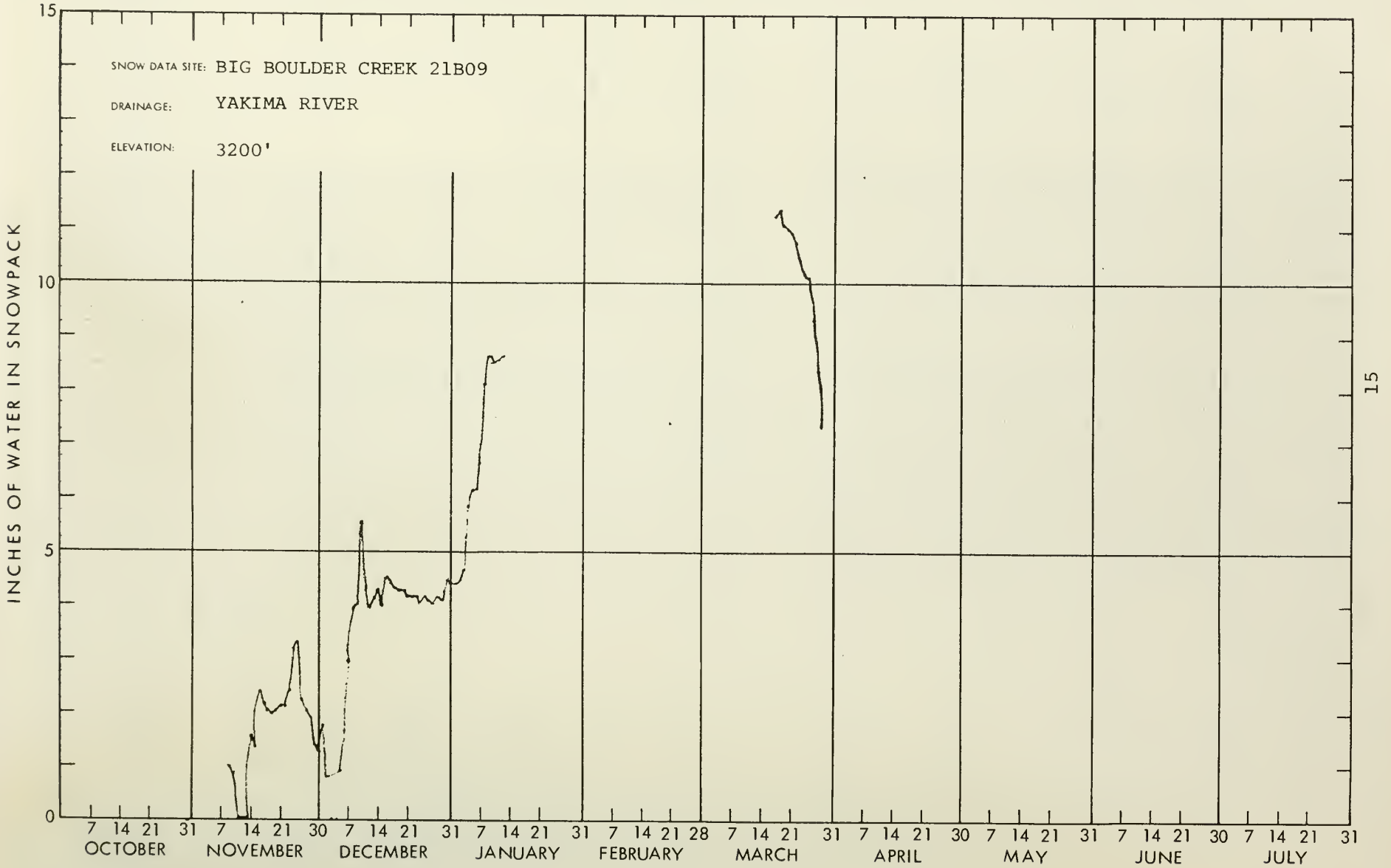
MAY
JUNE
JULY

WSFB-X13A


SNOW DATA SITE: BIG BOULDER CREEK 21B09
DRAINAGE: YAKIMA RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
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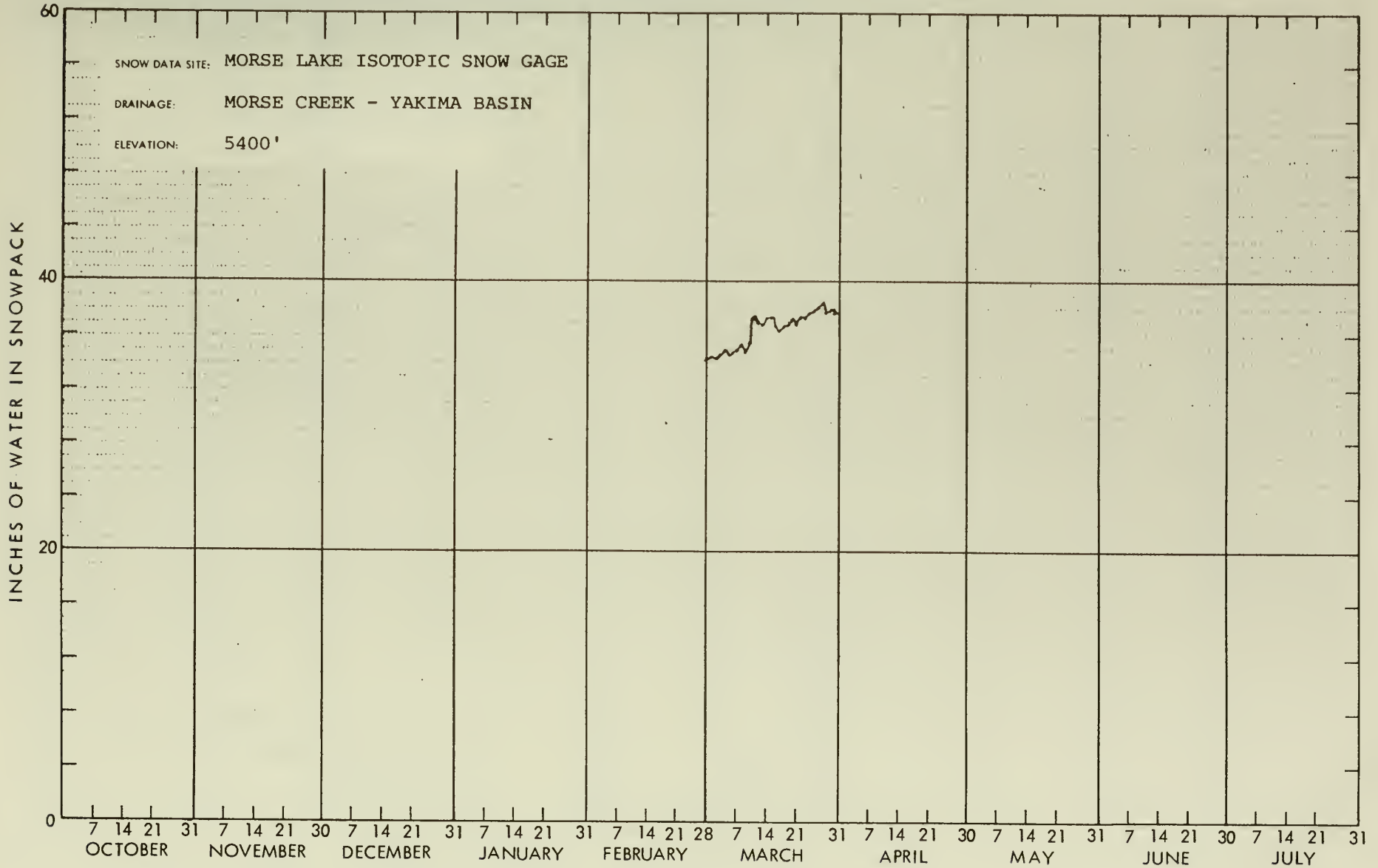
MAY
JUNE
JULY

WSFB-X13C


SNOW DATA SITE: MORSE LAKE ISOTOPIC SNOW GAGE
DRAINAGE: MORSE CREEK - YAKIMA BASIN
ELEVATION: 5400'
INCHES OF WATER IN SNOWPACK
60
40
20
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
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JULY

SNOW DATA TO APRIL 1, 1978 - APPENDIX 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
U P P E R C O L U M B I A D R A I N A G E							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	3/29	83	40.6	29.5	49.4
Baree Midway	15B16	4600	3/29	70	30.6	23.8	37.7
Baree Trail	15B15	3800	3/29	15	5.8	3.8	9.6
Benton Meadow	16A02	2344	3/28	4	1.5	0.0	3.4
Benton Spring	16A03	4900	3/28	39	16.7	7.8	19.4
Boyer Mountain	17A02	5250	3/27	65	25.6	11.4	27.9
Brush Creek Timber	14A13	5000	3/29	23	8.8	5.4	13.1
Bunchgrass Meadow	17A01	5000	3/30	66	29.1	13.4	31.4
Chewelah	17A04	4923	4/1	38	15.5	8.8	18.5
Heart Lake Trail	14C10	4800	3/31	44	18.1	11.6	23.4
Hoodoo Basin	15C10	6000	3/31	108	47.7	23.0	53.8
Hoodoo Creek	15C01	5900	3/31	100	43.5	22.4	50.3
Lookout	15B02	5250	3/13	88	33.8	15.4	35.6
			3/29	74	32.2	18.6	38.1
Mosquito Ridge	16A04A	5100	3/27	78	33.2	19.6	40.3
Nelson	19-Can	3050	3/30	33	12.2	8.7	15.7*
Schweitzer Bowl	16A06	4500	3/30	51	23.1	17.8	31.7
Schweitzer Ridge	16A05	6100	3/30	102	48.2	21.4	48.3
Smith Creek	16A01	4800	3/31	89	37.6	25.1	48.5
Winchester Creek	17A03	2970	3/27	26	9.6	4.6	11.8
KETTLE RIVER							
Barnes Creek	90-Can	5300	3/31	50	20.4	18.0	21.2*
Big White Mtn.	154-Can	5500	3/30	55	20.9	14.1	20.9*
Bluejoint Mtn.	244-Can	7500	3/31	70	28.2	14.9	14.9*
Boulder Road	18A02	1450	3/28	0	0.0	0.0	2.6
Butte Creek	18A03	4070	3/28	26	9.5	5.8	10.1
Cabin Creek	18A08	3170	3/28	20	7.1	4.5	9.2
Carmi	126-Can	4100	3/30	20	5.4	4.6	6.7*
Farron # 1	17-Can	4000	3/30	37	12.8	6.8	13.4*
Farron # 2	243-Can	4000	3/30	36	13.5	7.6	13.5*
Goat Creek	18A04	3595	3/28	14	5.4	1.8	6.0
Graystoke Lake	5-Can	5950	3/30	87	16.2	11.4	22.3*
Monashee Pass	48A-Can	4500	3/31	36	13.8	12.4	14.1*
Old Glory Mountain	42-Can	7000	3/31	80	31.7	14.1	28.8*
Snow Caps Creek	18A05	2150	3/28	0	0.0	0.0	2.3
Snow Caps Trail	18A06	2720	3/28	10	4.1	1.4	5.7
Summit G.S.	18A07	4600	3/28	22	8.0	4.4	8.6
Trapping Creek Lower	166-Can	3050	3/30	12	3.7	2.2	3.9*
Trapping Creek Upper	165-Can	4450	3/30	28	8.3	8.6	10.4*

\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1978 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
COLVILLE RIVER							
Baird	17A06	3215	4/1	12	4.1	0.0	5.7
Carlson	18A09	2885	4/1	0	0.0	0.0	2.6
Chewelah	17A04	4925	4/1	38	15.5	8.8	18.5
Stranger Mountain	17A05	4990	4/1	26	10.8	8.0	14.6
Togo	18A10	3370	4/1	27	10.2	4.8	12.5
SPOKANE RIVER							
Above Burke	15B08	6100	3/29	47	18.5	15.3	25.6
Above Roland	15B07	4350	3/27	70	26.8	15.0	35.8
Below Roland	15B06	3770	3/27	25	11.6	5.1	17.4
Copper Ridge	16B02	4800	3/30	35	16.0	14.6	30.1
Forty-nine Meadows	15B03	5000	3/31	54	19.8	13.6	34.9
Fourth of July Summit	16B03	3100	3/30	0	0.0	6.0	7.8
Granite Peak	15B13A	6000	3/31	94	34.4	19.8	47.5
Kellogg Peak	16B05A	5560	3/27	58	24.8	15.2	34.7
Lookout	15B02	5250	3/13	88	33.8	15.4	35.6
			3/29	74	32.2	18.6	38.1
Lost Lake	15B14A	6000	3/31	113	44.3	25.2	62.1
Lower Sands Creek	16B01	3400	3/30	38	16.2	12.1	20.7
Medicine Ridge	15B04A	6150	4/1	Not Measured		20.5	48.1
Mosquito Ridge	16A04A	5110	3/27	78	33.2	19.6	40.3
Roland Summit	15B05A	5200	3/27	82	36.6	16.0	39.2
Sherwin	16C01	3200	3/27	18	6.6	6.9	13.8
Sunset	15B09A	5600	3/27	74	30.5	18.0	39.3
SANPOIL RIVER							
Sherman Creek Pass	18A01	5350	3/28	35	12.1	6.0	15.5
OKANOGAN RIVER							
Aberdeen Lake	6A-Can	4300	3/31	19	6.1	5.1	6.2*
Blackwall Mountain	100-Can	6250	3/29	73	30.9	19.4	35.2*
Bouleau Lake	234-Can	4580	3/27	44	15.0	7.9	16.6*
Brenda Mine	193-Can	4800	3/30	32	13.3	7.5	14.4*
Brookmere	27-Can	3200	3/31	24	7.6	5.0	9.8*
Carrs Landing Upper	168-Can	3200	3/29	8.7	3.1	2.8	3.7*
Clark +	19A08a	7000	4/1	Not Measured		-	23.3
Enderby	130-Can	6250	3/28	109	42.1	29.5	39.7*
Esperon Creek Lower	164-Can	4400	3/31	33	11.9	4.6	13.0*
Esperon Creek Middle	163-Can	4700	3/31	39	15.8	8.8	16.6*
Esperon Creek Upper	162-Can	5400	3/31	48	18.7	10.7	20.7*

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation.

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1978 - APPENDIX 3

SNOW

DRAINAGE BASIN and or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
OKANOGAN RIVER (Cont.)							
Freezeout Meadows New	20A38	5000	3/31	57	24.0	16.0	29.9
Graystoke Lake	5-Can	5950	3/30	87	16.2	11.4	22.3*
Hamilton Hill	107-Can	4900	3/28	39	16.9	9.7	15.8*
Harts Pass	20A05A	6500	3/27	108	47.4	22.0	47.2
Horseshoe Basin +	19A05a	7000	3/30	48	16.3	11.8	13.5
Isintok Lake	152-Can	5510	4/1	27	9.4	3.5	8.5*
Lost Horse Mountain	105-Can	6300	3/31	32	6.8	6.5	9.6*
Loup Loup	19A07	4650	3/31	24	9.4	1.6	9.3
McCulloch	4-Can	4200	3/31	17	5.2	5.2	6.8*
Missezula Mountain	106-Can	5100	3/27	30	11.8	5.5	8.9*
Mission Creek	5A-Can	6000	3/30	55	20.8	16.8	20.4*
Monashee Pass	48A-Can	4500	3/31	36	13.8	12.4	14.1*
Mount Kobau	156-Can	5950	3/31	41	12.4	5.6	13.9*
Muckamuck +	19A09a	6390	3/30	50	17.0	6.2	17.8
Mutton Creek No. 1	19A01	5700	3/29	41	14.6	4.7	14.2
Mutton Creek No. 2	19A04	6000	3/29	41	13.3	5.3	15.4
Mutton Creek No. 2SP	19A11SP	6000	3/29	-	16.5	2.8	New
New Copper Mountain	46A-Can	4300	3/29	11	2.8	2.3	5.3*
New Penticton Res. #2	183-Can	5225	3/31	30	9.4	5.7	9.5*
Nickel Plate Mtn.	47-Can	6200	3/30	27	10.2	7.0	8.2*
Oyama Lake	203-Can	4400	3/28	23	8.1	5.5	7.8*
Paysayten +	20A28a	4300	3/30	24	8.2	10.6	16.0
Postill Lake	55-Can	4500	3/31	24	7.9	8.1	9.2*
Quartette Lake	34-Can	4000	3/29	26	10.6	5.5	14.7*
Rusty Creek	19A03	4000	3/29	20	6.6	0.6	7.0
Salmon Meadows	19A02	4500	3/29	28	9.0	3.1	10.3
Silver Star Mountain	99-Can	6050	3/27	81	32.2	19.2	28.7*
Starvation Mtn. +	19A10a	6750	3/30	60	20.4	8.4	21.9
Summerland Reservoir	3A-Can	4200	4/1	24	9.4	4.8	9.4*
Touts Coulee	19A06	2845	3/30	0	0.0	0.5	1.1
Trout Creek	3-Can	4700	3/28	23	7.3	4.2	7.6*
Vaseux Creek	233-Can	4600	3/31	17	5.6	5.0	7.5*
White Rocks Mountain	70-Can	6000	3/30	64	25.5	13.3	23.9*
METHOW RIVER							
Billy Goat Pass +	20A10a	6409	3/30	69	23.5	-	32.0
Dollar Watch +	20A29a	7000	4/1	Not Measured		-	29.3
Harts Pass	20A05A	6500	3/27	108	47.4	22.0	47.2
Horseshoe Basin +	19A05a	7000	3/30	48	16.3	11.8	13.5
Loup Loup	19A07	4650	3/31	24	9.4	1.6	9.3
Mutton Creek No. 1	19A01	5700	3/29	41	14.6	4.7	14.2
Mutton Creek No. 2	19A04	6000	3/29	41	13.3	5.3	15.4

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation.

SNOW DATA TO APRIL 1, 1978 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
METHOW RIVER (Cont.)							
Mutton Creek No. 2SP	19A11SP	6000	3/29	-	16.5	2.8	New
Rusty Creek	19A03	4000	3/29	20	6.6	0.6	7.0
Salmon Meadows	19A02	4500	3/29	28	9.0	3.1	10.3
War Creek Pass	20A31a	6500	4/1	Not Measured		-	43.5
CHELAN LAKE BASIN							
Cloudy Pass +	22A22a	6500	4/1	Not Measured		22.8	54.0
Greenwood Flat +	20A25a	3540	4/1	Not Measured		-	24.8
Little Meadows +	20A24a	5275	4/1	Not Measured		-	45.8
Lyman Lake	20A23A	5900	3/28	133	59.3	28.3	61.5
Park Creek Flat +	20A13a	2220	4/1	Not Measured		-	34.3
Park Creek Ridge	20A12A	4600	3/29	100	46.6	19.1	46.1
Petersons +	20A16a	3730	4/1	Not Measured		-	32.2
Rainy Pass	20A09	4780	3/27	96	43.4	22.8	41.6
Safety Harbor	20A30A	6300	4/1	Not Measured		-	29.9
War Creek Pass +	20A31a	6500	4/1	Not Measured		-	43.5
ENTIAT RIVER							
Blue Creek G.S.	20B28a	5425	3/29	96	45.2	23.0	New
Brief	20B19	1600	3/27	8.1	3.7	0.0	4.0
Entiat Meadows +	20A33a	4540	3/29	102	48.0	19.2	48.1
Entiat River Trail +	20A34a	3325	3/29	56	23.6	8.6	21.3
Four Mile Ridge +	20B27a	6800	3/29	96	45.2	15.4	New
Fox Camp +	20A36a	6510	3/29	152	71.6	27.5	59.0
Pope Ridge	20B20	3540	3/29	49	20.7	4.1	16.9
Pugh Ridge +	20A32a	6725	3/29	97	45.7	15.7	39.6
Shady Pass	20A37	6200	3/30	78	36.8	10.3	New
Snow Brushy +	20A35a	3910	3/29	93	39.2	20.7	40.9
Tommy Creek +	20B21a	4900	3/29	52	24.5	7.0	27.1
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	3/13	74	28.0	9.1	-
			3/28	60	27.1	12.0	27.6
Berne-Mill Creek New	21B41SP	3240	3/28	41	18.6	10.2	23.3
Blewett Pass No. 2	20B02	4270	3/24	38	15.6	4.4	16.5
Chiwaukum G.S.	20B16	1810	3/13	33	13.4	2.8	-
			3/28	23	8.9	0.0	10.5
Fish Lake	21B04	3371	3/28	61	26.5	15.1	35.1
Lake Wenatchee	20B05	1970	3/13	44	17.0	4.6	-
			3/28	32	13.4	4.4	11.9

\# Average based on 1958-72 average.
\+ Snow water equivalent estimated from aerial stadia observation.

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1978 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
WENATCHEE RIVER (Cont.)							
Leavenworth R.S.	20B17	1127	3/13	1.8	0.8	0.0	-
			3/29	0	0.0	0.0	0.7
Lyman Lake	20A23A	5900	3/28	133	59.3	28.3	61.5
Merritt	20B18	2140	3/13	50	21.4	4.7	-
			3/28	35	12.9	2.9	14.9
Stevens Pass	21B01	4070	3/13	116	50.0	19.1	50.8
			3/28	102	46.3	25.9	53.7
Stevens Pass Sand Shed	21B45	3700	3/13	86	33.5	10.3	-
			3/28	68	32.0	15.4	-
SQUILCHUCK CREEK							
Beehive Springs	20B03	4400	3/31	16	7.1	1.4	7.8
Scout-A-Vista	20B04	3400	3/31	17	7.3	0.3	6.9
STEMILT CREEK							
Jump-Off	20B08	4450	3/29	25	10.8	1.6	8.0
Stemilt Slide	20B06	5000	3/29	31	13.7	2.7	15.5
Upper Wheeler	20B07	4400	3/29	17	7.3	1.1	9.0
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	3/29	31	14.3	3.4	-
Colockum Creek Lower	20B23	4300	3/29	23	10.5	1.2	-
Trough # 2	20B25SP	5310	3/29	40	18.0	3.2	New
YAKIMA RIVER							
Ahtanum R.S.	21C11	3100	3/28	12	4.4	0.0	5.2
Big Boulder Creek	21B09	3200	3/28	24	10.0	7.3	18.0
Blewett Pass No. 2	20B02	4270	3/24	38	15.6	4.4	16.5
Bumping Lake	21C08	3450	3/17	35	13.6	2.9	16.9
			3/28	24	10.0	3.1	16.2
Bumping Lake New	21C36	3400	3/17	42	16.9	3.3	21.4
			3/28	33	14.5	4.4	20.7
Cayuse Pass	21C06	5300	4/3	155	70.4	38.1	90.2
Colockum Pass	20B09	5370	3/31	44	21.0	3.8	17.4
Cooke Creek	20B10	4123	3/30	0	0.0	0.0	5.1
Corral Pass	21B13	6000	3/29	69	30.5	16.5	41.6
Fish Lake	21B04	3371	3/28	61	26.5	15.1	35.1
Green Lake	21C10	6000	3/28	74	32.5	12.0	36.2
Grouse Camp	20B11	5385	3/30	41	18.4	4.9	17.1

Average based on 1958-72 average.

USDA SCS PORTLAND, OREGON

SNOW DATA TO APRIL 1, 1978 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average#
YAKIMA RIVER (Cont.)							
High Creek	20B12	2930	3/30	0	0.0	0.0	2.3
Joe Lake +	21B46a	4624	3/29	123	51.7	40.9	-
Lake Cle Elum	21B14M	2200	3/13	18	6.5	0.0	7.8
			3/30	0	0.0	0.0	4.5
Lemah Creek +	21B47a	3327	3/29	63	26.5	21.1	-
Manashtash	20C01	3935	3/29	Trace	0.0	0.0	2.2
Morse Lake	21C17	5400	3/30	107	48.7	19.9	61.9
Nanum	20B13	3875	3/30	Trace	0.0	0.0	8.2
Olallie Meadows	21B02	3625	3/29	60	26.4	22.6	48.8
Satus Pass	20D01	4030	3/30	0	0.0	0.0	8.6
Stampede Pass Sp	21B10	3860	3/15	95	43.0	9.0	41.2
			3/31	57	29.8	14.4	43.4
Trail Creek	20B14	3360	3/30	0	0.0	0.0	0.1
Tunnel Avenue	21B08	2450	3/14	47	15.5	5.3	24.0
			3/30	29	11.2	7.4	24.1
Van Epps Pass +	20B26a	5925	3/29	104	43.7	28.4	-
Walters Flat	20B15	3360	3/30	Trace	0.0	0.0	5.3
Waptus Lake +	21B49a	3024	3/29	87	36.5	21.9	-
White Pass (E. Side)	21C28	4500	3/20	53	20.1	4.2	24.7
			3/31	40	17.4	7.4	25.9
AHTANUM CREEK							
Ahtanum R.S.	21C11	3100	3/28	12	4.4	0.0	5.2
Green Lake	21C10	6000	3/28	74	32.5	12.0	36.2
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C04	5700	3/27	41	18.5	10.4	26.6
MILL CREEK							
Homestead	17C01	4030	3/28	0	0.0	4.8	7.3
Martin Springs	17C02	4400	3/28	9.1	3.5	7.3	14.2
Tollgate	18D3M	5070	3/28	37	15.1	13.1	25.1
KLICKITAT RIVER							
Satus Pass	20D01	4030	3/30	0	0.0	0.0	8.6

\# Average based on 1958-72 average.
\+ Snow water equivalent estimated from aerial stadia observation.

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1978 - APPENDIX 7

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	3/27	84	37.0	21.8	49.4
Surprise Lakes	21C13A	4250	3/27	78	34.3	19.3	53.9
WIND RIVER							
Old Man Pass	21D19	3100	3/27	0	0.0	9.6	19.7
LEWIS RIVER							
Blue Lake +	21C22a	4800	3/27	158	69.5	41.6	84.8
Bob's Trail	21C21	2200	3/27	0	0.0	6.8	15.1
Clamity Ridge +	22D01a	2500	3/27	0	0.0	7.1	5.6
Council Pass +	21C18a	4200	3/27	56	24.6	23.0	42.9
Cultus Creek	21C12	4000	3/27	84	37.0	21.8	49.4
Divide Meadow +	21C29a	5600	3/27	92	40.5	27.7	60.6
Grand Meadow	21C25	3500	3/27	23	9.4	10.1	27.7
Lone Pine Shelter	21C26	3800	3/27	44	18.0	18.9	43.3
Marble Mountain +	22C05a	3200	3/27	10	4.8	17.3	38.2
New Muddy River	22C06	2000	3/27	0	0.0	3.0	9.5
Old Man Pass	21D19	3100	3/27	0	0.0	9.6	19.7
Plains of Abraham +	22C01a	4400	3/27	130	57.2	33.0	71.8
Smith Creek Road	22C04	2100	3/27	0	0.0	0.8	17.7
Spencer Meadow +	21C20a	3400	3/27	0	0.0	14.9	25.7
Surprise Lakes	21C13A	4250	3/27	78	34.3	19.3	53.9
Table Mountain +	21C24a	4200	3/27	82	36.1	26.2	48.8
Timbered Peak +	21D18a	3000	3/27	0	0.0	14.9	17.8
COWLITZ RIVER							
Cayuse Pass	21C06	5300	4/3	155	70.4	38.1	90.2
Plains of Abraham +	22C01a	4400	3/27	130	57.2	33.0	71.8
White Pass (E. Side)	21C28	4500	3/20	53	20.1	4.2	24.7
			3/31	40	17.4	7.4	25.9
PUGET SOUND DRAINAGE							
WHITE RIVER							
Cayuse Pass	21C06	5300	4/3	155	70.4	38.1	90.2
Corral Pass	21B13	6000	3/29	69	30.5	16.5	41.6
Morse Lake	21C17	5400	3/30	107	48.7	19.9	61.9

\# Average based on 1958-72 average.
\+ Snow water equivalent estimated from aerial stadia observation.

USDA SCS PORTLAND OREGON 1973

WSFB-X4-L

SNOW DATA TO APRIL 1, 1978 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Water Content (inches) Average #
GREEN RIVER							
Airstrip	21B24	1800	4/3	0	0.0	0.0	1.3
Charley Creek	21B25	1200	4/3	0	0.0	0.0	0.0
Cougar Mountain SP	21B42SP	3200	3/30	0	0.0	10.4	-
Grass Mtn. No. 2	21B27	2900	4/3	0	0.0	8.8	24.4
Grass Mtn. No. 3	21B28	2100	4/3	0	0.0	2.2	4.4
Lester Creek	21B29	3100	4/3	26	9.3	12.8	27.0
Lynn Lake	21B50	4000	4/3	0	0.0	21.8	-
Sawmill Ridge	21B31	4700	4/3	54	22.8	17.1	41.5
Snowshoe Butte SP	21B43SP	5000	3/29	88	39.4	24.2	-
Stampede Pass SP	21B10	3860	3/15	95	43.0	9.0	41.2
			3/31	57	29.8	14.4	43.4
Twin Camp	21B30	4100	4/3	26	10.7	11.8	25.9
CEDAR RIVER							
City Cabin	21B03	2390	3/27	0	0.0	7.8	15.5
Mt. Gardner	21B21	3300	3/27	0	0.0	10.2	18.0
Mt. Lindsay	21B16	2500	3/27	0	0.0	6.6	15.9
Mt. Washington New	21B15	3000	3/27	0	0.0	6.8	7.5
Rex River	21B17	2400	3/27	0	0.0	9.4	13.5
S. F. Cedar	21B06	3000	3/27	0	0.0	8.0	20.6
Tinkham Creek	21B20	3400	3/27	11	4.7	11.2	23.7
SNOQUALMIE RIVER							
Alpine Meadow	21B48	3500	3/28	41	18.9	24.1	-
Lake Elizabeth	21B19	2900	3/29	40	19.3	23.2	48.5
Olallie Meadows	21B02	3625	3/29	60	26.4	22.6	48.8
S. F. Tolt	21B18	1900	3/28	0	0.0	0.0	0.8
SKYKOMISH RIVER							
Lake Elizabeth	21B19	2900	3/29	40	19.3	23.2	48.5
Stevens Pass	21B01	4070	3/13	116	50.0	19.1	50.8
			3/28	102	46.3	25.9	53.7
Stevens Pass Sand Shed	21B45	3700	3/13	86	33.5	10.3	-
			3/28	68	32.0	15.4	-

Average based on 1958-72 average.

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO APRIL 1, 1978 - APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
SKAGIT RIVER							
Beaver Creek Trail	21A04	2200	3/28	14	6.2	3.6	12.6
Beaver Pass	21A01	3680	3/28	52	20.9	9.9	33.7
Brown Top +	21A28a	6000	3/28	130	55.0	30.4	-
Cloudy Pass	20A22a	6500	4/1	Not Measured		22.8	54.0
Devils Park	20A04A	5900	3/27	101	43.8	21.7	45.6
Freezeout Cr. Trail	20A01	3500	3/31	18	5.9	4.8	12.5
Freezeout Meadows New	20A38	5000	3/31	57	24.0	16.0	29.9
Granite Creek	21A29	3500	3/27	35	13.8	9.8	-
Harts Pass	20A05A	6500	3/27	108	47.4	22.0	47.2
Klesilkwa	35B-Can	3700	3/31	13	5.0	7.4	15.5*
Lyman Lake +	20A23A	5900	3/28	133	59.3	28.3	61.5
Meadow Cabins	20A08	1900	3/28	4.2	1.5	1.1	6.0
New Hozomeen Lake	21A30	2800	3/31	13	4.7	4.1	-
New Tashme	26A-Can	2500	3/28	15	6.1	4.8	11.0*
Quartette Lake	34-Can	4000	3/29	26	10.6	5.5	14.7*
Rainy Pass	20A09	4780	3/27	96	43.4	22.8	41.6
Thunder Basin	20A07	4200	3/28	48	18.4	11.5	23.9
BAKER RIVER							
Baker Pass +	21A27a	4900	4/1	Marker Missing		46.5	-
Dock Butte	21A11A	3800	3/30	91	43.2	34.2	71.3
Easy Pass	21A07A	5200	3/30	182	86.3	39.2	87.0
Jasper Pass	21A06A	5400	3/31	170	77.6	47.8	93.6
Komo Kulshan	21A17	800	3/30	0	0.0	0.0	6.0
Marten Lake	21A09A	3600	3/31	112	52.1	43.8	78.1
Mount Blum +	21A18a	5800	3/31	134	61.6	35.1	-
Panorama New	21A26	4300	3/12	113	52.8	29.6	-
			3/31	107	53.5	37	
Rocky Creek	21A12A	2100	3/30	16	7.9	15.6	29.2
Schreibers Meadow	21A10A	3400	3/30	86	37.9	33.1	65.6
S. F. Thunder Creek	21A14A	2200	3/30	0	0.0	3.1	5.3
Sulphur Creek	21A13	1600	3/30	0	0.0	4.7	13.6
Three Mile Creek	21A15	1600	3/30	0	0.0	0.0	1.7
Watson Lakes	21A08A	4500	3/30	101	49.5	34.0	71.2
NOOKSACK RIVER							
Bald Mountain +	21A19a	4400	4/3	70	38.5	29.8	51.0
Canyon +	21A20a	5100	4/3	70	28.5	45.3	60.0
Glacier Creek	21A23	3700	4/1	7.6	4.8	17.6	23.4
Panorama New	21A26	4300	3/12	113	52.8	29.6	-
			3/31	107	53.5	37.3	-
Twin Lakes +	21A21a	5200	4/3	70	38.5	45.3	79.1

Average based on 1958-72 average.
* Average for years of record.
\+ Snow water equivalent estimated from aerial stadia observation.

WSFB-X4-L

SNOW DATA TO APRIL 1, 1978 - APPENDIX 10

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B04	5200	3/31	31	11.6	12.6	24.1
MORSE CREEK							
Cox Valley	23B14	4500	3/31	71	28.0	22.2	-
ELWHA RIVER							
Hurricane	23B03	4500	3/30	31	11.9	14.1	26.1

Average based on 1958-72 average.

USDA SCS PORTLAND OREGON 1973

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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COOPERATIVE SNOW SURVEYS

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"The Conservation of Water begins with the Snow Survey"

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WATER SUPPLY OUTLOOK FOR WASHINGTON

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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
MAY 1, 1978

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts became more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA-SCS-PORTLAND, OR 1977

WATER SUPPLY OUTLOOK

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WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R.M. DAVIS

ADMINISTRATOR
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WASHINGTON D C

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WILBUR G. HALLAUER

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor
and
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SOIL CONSERVATION SERVICE
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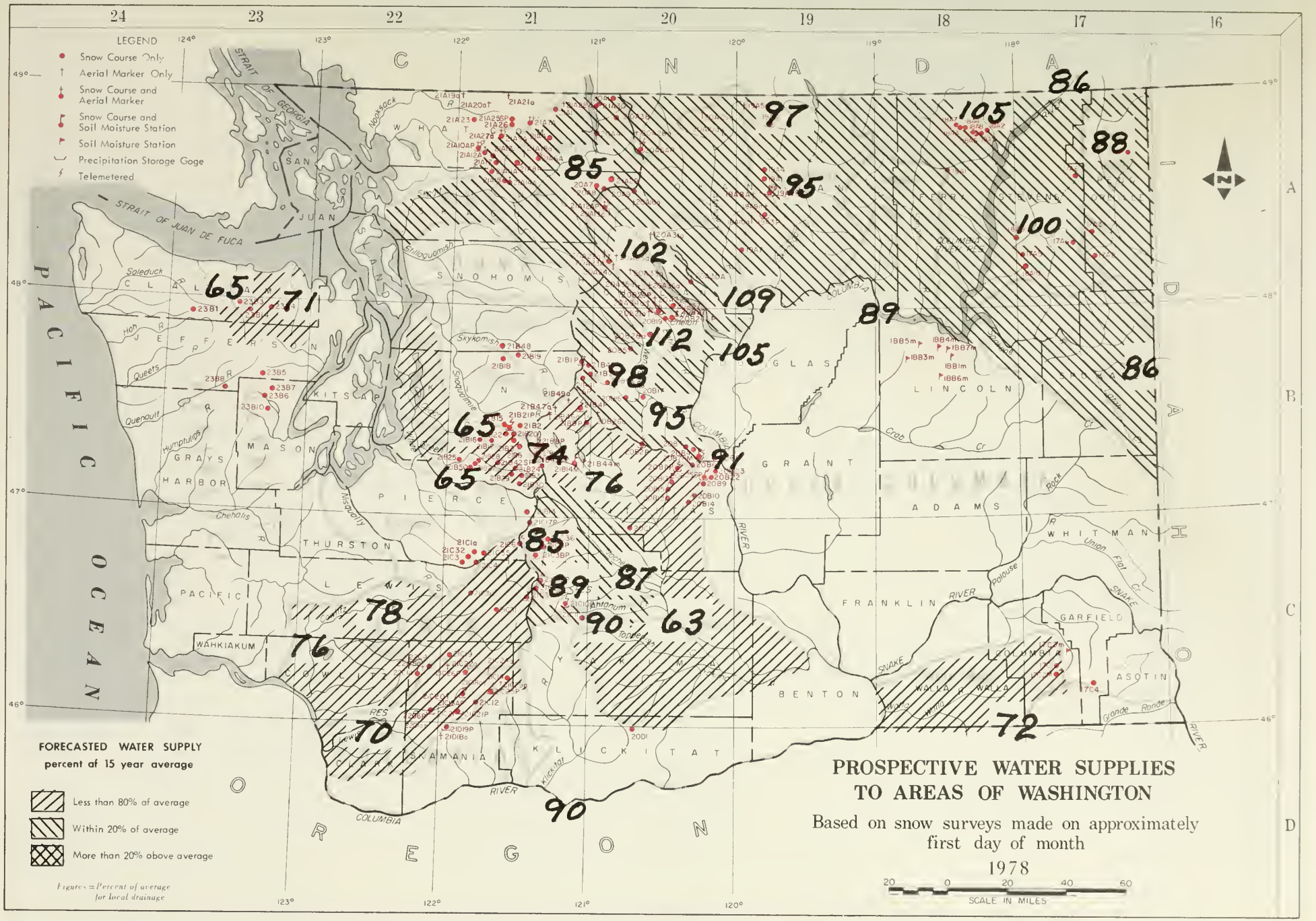
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percent of 15 year average
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON
Based on snow surveys made on approximately first day of month
1978
SCALE IN MILES
CANADA
PACIFIC OCEAN
OREGON
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
SAN JUAN
WHATCOM
SKAGIT
SNOHOMISH
KING
KITSAP
JEFFERSON
CLALLAM
MASON
GRAYS HARBOR
PIERCE
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SKAMANIA
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COLUMBIA
GARFIELD
ASOTIN
FERRY
STEVENS
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INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5AP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	2082P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21B4S	12	26N	19E	3700

Wenotchee River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Trough #2	2082SSP	10	20N	20E	5310

Colockum Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	2088	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	1885m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Oomery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Asotin Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Spruce Springs	17C4	9	8N	40E	5700

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	2001	21	6N	17E	4030

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Oivide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25P	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C3S	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21824	18	20N	11E	1800
Charley Creek	21B2S	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21810P	25	21N	11E	3860
Twin Camp	21830	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21822	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Alpine Meadow	2184B	31	27N	9E	3500
Olallie Meadows	2182	19	22N	11E	3625
South Fork Tolt	21B1B	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21819	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	2384	1	28N	5W	5200

Morse Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cox Valley	23814	31	29N	6W	4500

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	2385	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

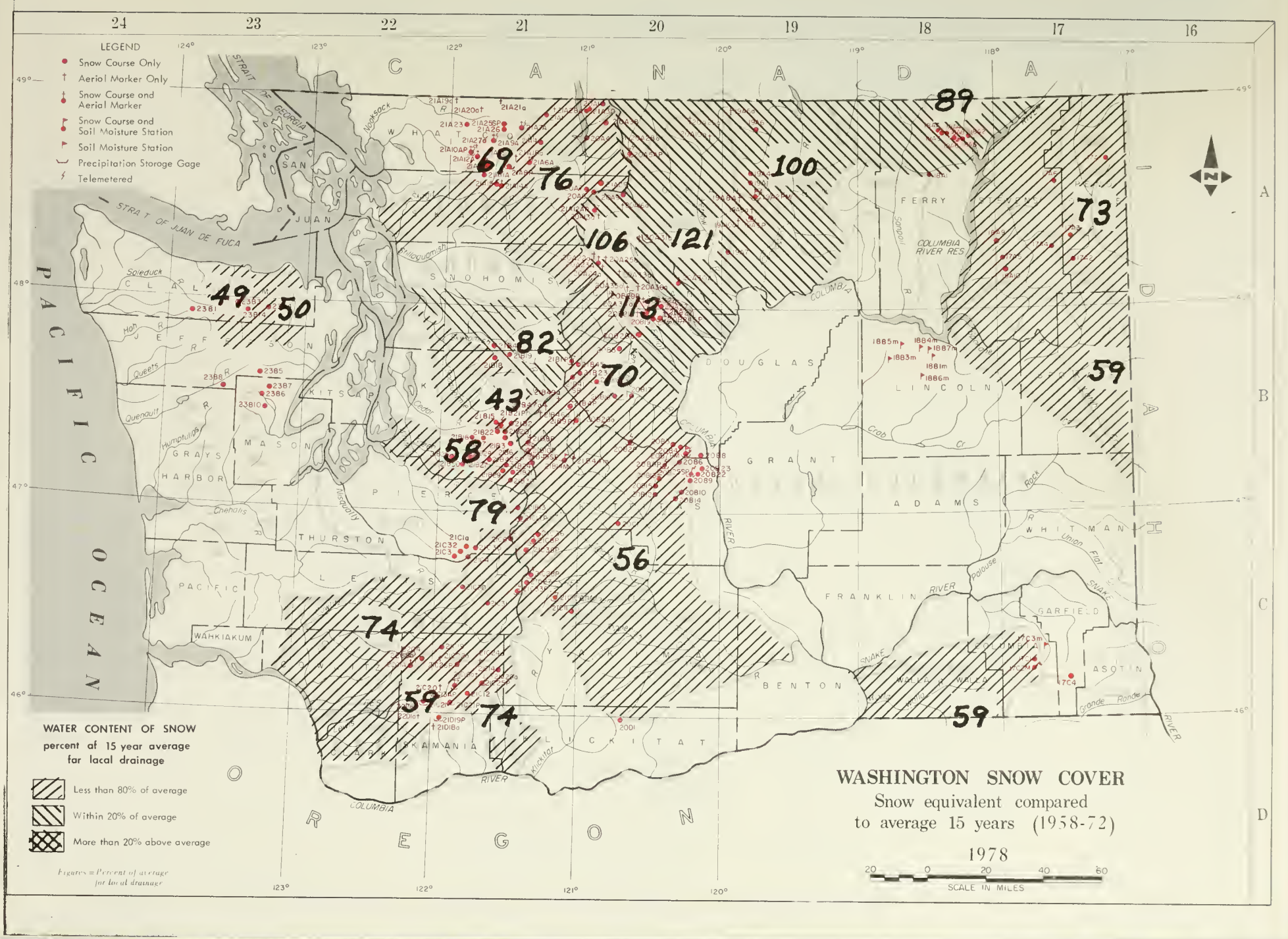
Soleduck River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	Snow Course Only
21A7a	Aerial Marker Only
21A7A	Snow Course and Aerial Marker
21A7M	Snow Course and Soil Moisture Station
21A7m	Soil Moisture Station
21A7P	Snow Course and Precipitation Storage Gage
21A7p	Precipitation Storage Gage
21A7SP	Snow Pillow


LEGEND
Snow Course Only
Aerial Marker Only
Snow Course and Aerial Marker
Snow Course and Soil Moisture Station
Soil Moisture Station
Precipitation Storage Gage
Telemetered
WATER CONTENT OF SNOW
percent of 15 year average for local drainage
Less than 80% of average
Within 20% of average
More than 20% above average
Figures = Percent of average for local drainage
WASHINGTON SNOW COVER
Snow equivalent compared to average 15 years (1958-72)
1978
SCALE IN MILES
CANADA
OREGON
PACIFIC OCEAN
STRAIT OF JUAN DE FUCA
STRAIT OF GEORGIA
89
100
73
69
76
106
121
113
82
70
59
49
50
43
58
79
56
74
59
74
59
WHATCOM
SKAGIT
SNOHOMISH
SAN JUAN
ISLAND
JEFFERSON
CLALLAM
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
LEWIS
WAHKIAKUM
PACIFIC
KING
KITTITAS
YAKIMA
BENTON
FRANKLIN
FERRY
STEVENS
COLUMBIA RIVER RES
DOUGLAS
LINCOLN
GRANT
ADAMS
WHITMAN
GARFIELD
COLUMBIA
ASOTIN
WALLA WALLA
Hoko R
Soleduck R
Hoh R
Queets R
Quenault R
Humptulips R
Chehalis R
Nisqually R
Cedar R
Snoqualmie R
Skykomish R
Snohomish R
Stillaguamish R
Nooksack R
Sanpoil R
Crab Cr
Rock Cr
Union Flat Cr
Palouse R
Grande Ronde R
Kachess R
Kittitas Cr
Yakima R
Kachess L
Keechelus L
Kittitas
Ellensburg
Cle Elum
Roslyn
Easton
Snoqualmie Pass
Ellensburg
Yakima
Kennewick
Pasco
Walla Walla
Dayton
Pomeroy
Clarkston
Asotin
Colfax
Pullman
Moscow
Lewiston
Grangeville
Kamiah
Orofino
Kooskia
Elk River
Potlatch
Deary
Bovill
Troy
Harrison
Coeur d'Alene
Kellogg
Wallace
Mullan
Pierce
Weippe
Headquarters
Lolo
Missoula
Hamilton
Darby
Stevensville
Florence
Lolo Pass
Lolo Hot Springs
Powell
Lookout Pass
Saltese
Haugan
Superior
Alberton
Frenchtown
Huson
Bonner
Milltown
Clinton
Potomac
Seeley Lake
Ovando
Helmville
Condon
Swan Lake
Bigfork
Kalispell
Whitefish
Columbia Falls
Hungry Horse
Martin City
Essex
West Glacier
Polebridge
Apgar
Big Creek
Moyie Springs
Bonners Ferry
Porthill
Eastport
Naples
Priest River
Priest L
Sandpoint
Hope
Clark Fork
Cabinet
Noxon
Trout Creek
Thompson Falls
Heron
Libby
Troy
Yaak
Rexford
Eureka
Fortine
Whitefish L
Flathead L
Polson
Ronan
St Ignatius
Arlee
Dixon
Hot Springs
Perma
Plains
Paradise
Superior
Alberton
Frenchtown
Missoula
Lolo
Florence
Stevensville
Hamilton
Darby
Lolo Pass
Lolo Hot Springs
Powell
Lookout Pass
Saltese
Haugan
Superior
Alberton
Frenchtown
Huson
Bonner
Milltown
Clinton
Potomac
Seeley Lake
Ovando
Helmville
Condon
Swan Lake
Bigfork
Kalispell
Whitefish
Columbia Falls
Hungry Horse
Martin City
Essex
West Glacier
Polebridge
Apgar
Big Creek
Moyie Springs
Bonners Ferry
Porthill
Eastport
Naples
Priest River
Priest L
Sandpoint
Hope
Clark Fork
Cabinet
Noxon
Trout Creek
Thompson Falls
Heron
Libby
Troy
Yaak
Rexford
Eureka
Fortine
Whitefish L
Flathead L
Polson
Ronan
St Ignatius
Arlee
Dixon
Hot Springs
Perma
Plains
Paradise

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370
Sanpoil River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanogan River					
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20ASAP	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650
Chelan Lake Basin					
Cloudy Pass	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23a	18	31N	16E	5900
Park Creek Flat	20A13a	19	34N	16E	2220
Park Creek Ridge	20A12A	18	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500
Entiat River					
Blue Creek G.S.	20B28a	19	28N	18E	5425
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33a	28	31N	17E	4540
Entiat River Trail	20A34a	2	29N	17E	3325
Four Mile Ridge	20B27a	15	28N	19E	6800
Fox Camp	20A36a	17	30N	18E	6510
Pope Ridge	20B20P	22	29N	18E	3540
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540
Pugh Ridge	20A32a	34	30N	18E	6725
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35a	21	30N	17E	3910
Tommy Creek	20B21a	10	28N	18E	4900
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	3170
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240
Blewett Pass No. 2	20B2P	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1P	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Wenatchee River (continued)					
Trough #2	20B25SP	10	20N	20E	5310
Colockum Creek					
Colockum Creek Upper	20B22	11	20N	20E	5300
Colockum Creek Lower	20B23	1	20N	20E	4300
Squilchuck Creek					
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400
Stemilt Creek					
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7PM	30	21N	20E	4400
Crab Creek					
Creston-Kunz	18B1m	32	27N	34E	2440
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Sherman	18B7m	24	27N	33E	2440
Wheatridge	18B6m	24	25N	32E	2290
Yakima River					
Ahtanum R. S.	21C11	24	12N	14E	3100
Big Boulder Creek	21B9P	35	23N	14E	3200
Bumping Lake	21C8P	23	16N	12E	3450
Bumping Lake New	21C36	13	16N	12E	3400
Bumping Ridge	21C38P	9	15N	12E	4600
Colockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Domery Flat	21B44m	15	20N	14E	2200
Fish Lake	21B4P	28	24N	14E	3371
Green Lake	21C10P	3	12N	13E	6000
Grouse Camp	20B11P	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Joe Lake	21B46a	22	23N	12E	4624
Lake Cle Elum	21B14M	15	20N	14E	2200
Lemah Creek	21B47a	7	23N	13E	3327
Manastash	20C1	24	17N	16E	3935
Morse Lake	21C17P	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8P	13	21N	11E	2450
Van Epps Pass	20B26a	16	23N	15E	5925
Walters Flat	20B15	22	20N	19E	3360
Waptus Lake	21B49a	12	23N	13E	3024
White Pass (East Side)	21C28P	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500
LOWER COLUMBIA DRAINAGE					
Asotin Creek					
Spruce Springs	17C4	9	8N	40E	5700
Mill Creek					
Couse	17C3m	2	9N	40E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Klickitat River					
Satus Pass	20D1	21	6N	17E	4030
White Salmon River					
Cultus Creek	21C12	35	7N	8E	4000
Lewis River					
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21P	25	8N	7E	2200
Calamity Ridge	2201a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Lewis River (continued)					
Olvide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C2SP	28	8N	9E	3500
Lone Pine Shelter	21C26P	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6P	36	8N	6E	2000
Oldman Pass	21019P	22	6N	7E	3100
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13AP	14	7N	8E	4250
Table Mountain	21c24a	20	9N	9E	4200
Timbered Peak	21018a	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33P	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250
PUGET SOUND DRAINAGE					
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	22	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21843SP	14	20N	11E	5000
Stampede Pass	21B10P	25	21N	11E	3860
Twin Camp	21830	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21P	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900
Skykamish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Brown Top	21A28a	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows New	20A38	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Meadows Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	20A7	19	40N	14E	2800
Thunder Basin	21A30	10	35N	14E	4200
Baker River					
Baker Pass	21A27a	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12AP	20	37N	8E	2100
Schreibers Meadow	21A10AP	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8P	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19a	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A2SSP	17	39N	9E	4300
Twin Lakes	21A21a	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	31	29N	6W	4500
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skakamish River					
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7	SNOW COURSE ONLY
21A7a	AERIAL MARKER ONLY
21A7A	SNOW COURSE AND AERIAL MARKER
21A7M	SNOW COURSE AND SOIL MOISTURE STATION
21A7m	SOIL MOISTURE STATION
21A7P	SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7p	PRECIPITATION STORAGE GAGE
21A7SP	SNOW PILLOW

WATER SUPPLY OUTLOOK

State of Washington

May 1, 1978

The water supply outlook for the northern part of the state, including British Columbia, has improved from that which was reported last month. The percentage improvement ranges from 6 to 10 percent over most of this area. The central and southern portion of the state, from the Wenatchee south, have a water supply outlook that is reduced from that previously reported. This, in spite of generally above normal precipitation which occurred over the state. The snow pack is gone, for all practical purposes, in the low and middle elevations, but the snow courses at the higher elevations reported an increase of snow water equivalent due to this above normal precipitation. Flows of the major streams in the state were above normal with the exception being primarily low elevation watersheds.

SNOW COVER

The snow pack in the Upper Columbia Basin now ranges from 44 percent below average for the Yakima Drainage to 21 percent above normal for the Methow. The Methow Drainage is measured by only one snow course. In the Lower Columbia Drainage, the snow cover ranges from 41 percent below normal for the Lewis and Mill Creek Drainages to 26 percent below for the Cowlitz and White Slamon Drainages. The Puget Sound Drainage snow courses have a snow cover that ranges from 57 percent below normal on the Snoqualmie to 18 percent below in the Skykomish Drainage. The Olympic Peninsula has a snow cover that is 50 percent below normal for the northern slope drainages.

RESERVOIRS

The major irrigation reservoirs are generally in excellent shape. The five reservoirs in the Yakima Basin have water in storage 21 percent greater than normal. These reservoirs are currently 90 percent full. Conconully Reservoir, a small pond above Okanogan, has only 51 percent of average storage as of May 1, and is only 44 percent full. Salmon Lake, in the same area, is 5 percent below normal and 26 percent shy of being full. The power reservoirs generally have excellent amounts of water in storage or good potential for filling with the spring runoff.

PRECIPITATION

As reported by the National Weather Service, precipitation was above normal in all drainage divisions except the northwest slopes of the Cascades. This precipitation regime ranges from 10 percent below normal for the northwest slopes to 150 percent above normal in southeastern Washington. The Bureau of Reclamation reports precipitation at their five reservoirs to be 15 percent above average for this past month.

STREAMFLOW

Flow of the main stem, during the past month, was 16 to 21 percent above normal. Most of the tributary streams in the northern part of the state show above normal runoff while some in the southern area have below normal outflows. Streamflow forecasts, as stated above, have been increased in the northern portion of the state and reduced in the southern portion. These forecasts now range from 35 percent below normal to 10 percent above. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - MAY 1978

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1977 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
COLUMBIA BASIN							
COLUMBIA RIVER SYSTEM **							
Columbia River at Birchbank 1/	37200	86	May-Sept	29046	50657	39289	43490
	29800	86	May-July	21302	35698	31132	34632
	21200	86	May-June	15503	22773	20618	24633
Columbia River at Grand Coulee 1/	55000	89	May-Sept	36444	73149	62331	62110
	45300	88	May-July	27451	54890	51699	51473
	34500	88	May-June	21045	38731	37207	39153
Columbia River bl. Rock Island Dam 1/	61600	91	May-Sept	38802	78541	68770	67890
	51100	91	May-July	29535	59584	57944	56790
	39300	91	May-June	22883	42213	41976	43202
Columbia River at The Dalles, OR 1/	82500	90	May-Sept		106435	98803	91550
	68500	89	May-July		83524	84097	76815
	53500	89	May-June		62723	62915	60083
PEND OREILLE RIVER SYSTEM **							
Pend Oreille River bl. Box Canyon	12100	88	May-Sept	4938	15035	15807	13740
	11000	88	May-July	4209	13376	14132	12471
	9300	88	May-June	3713	11084	10676	10561
KETTLE RIVER SYSTEM							
Kettle River nr. Laurier	1700	105	May-Sept	973	2197	1747	1614
	1600	104	May-July	932	1875	1665	1534
	1440	104	May-June	865	1589	1479	1381
Colville River at Kettle Falls	100	110	May-Sept		82	175	91
	85	106	May-July		66	153	80
	75	106	May-June		58	137	71

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

** Forecasts made by National Weather Service, River Forecast Center, Portland, OR

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Forecast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
SPOKANE RIVER SYSTEM *							
Spokane River	1750	86	May-Sept	687	2223	2842	2010
at Post Falls, ID 2/	1650	86	May-July	735	2077	2699	1916
	1550	86	May-June	581	1892	2457	1810
OKANOGAN RIVER SYSTEM **							
Similkameen River	1380	97	May-Sept	558	1859	1398	1425
nr. Nighthawk	1290	97	May-July	517	1635	1303	1353
	1100	97	May-June	460	1262	1057	1131
Okanogan River	1510	95	May-Sept	617	2055	1464	1587
nr. Tonasket	1360	94	May-July	553	1706	1319	1446
	1150	95	May-June	592	2152	1063	1213
METHOW RIVER SYSTEM **							
Methow River	1030	109	May-Sept		1121	942	946
nr. Pateros	950	108	May-July		963	862	879
	800	107	May-June		718	678	748
CHELAN RIVER SYSTEM							
Chelan River	1200	105	May-Sept	510	1365	1289	1139
at Chelan 3/	1050	105	May-July	392	1083	1136	999
	800	104	May-June	314	735	784	767
Stehekin River	850	102	May-Sept	422	960	885	830
at Stehekin	720	102	May-July	310	737	758	702
	530	101	May-June	239	473	488	526
Entiat	250	112	May-Sept		290	258	223
nr. Ardenvoir	225	110	May-July		247	233	204
	180	109	May-June		170	172	165
WENATCHEE RIVER SYSTEM							
Wenatchee River	1150	98	May-Sept	506	1394	1316	1165
at Plain	1020	98	May-July	414	1148	1182	1040
	780	96	May-June	352	776	844	809
Wenatchee River	1500	95	May-Sept	673	1903	1805	1583
at Peshastin	1340	94	May-July	564	1576	1623	1426
	1040	93	May-June	487	1067	1164	1121
Stemilt Basin nr. Wenatchee	130#	94	May-Sept		144#	134#	138#
Icicle Creek	360	97	Apr-Sept				371
nr. Leavenworth	330	96	Apr-July				342
	270	97	Apr-June				279

\# Forecast in Thousands of Miners' Inches

* Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho

** Forecasts made by National Weather Service, River Forecast Center, Portland, Oregon

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	Seasonal Streamflow in Thousands of Acre-Feet 1977	1976	1975	15-Yr. Average 58-72
YAKIMA RIVER SYSTEM							
Yakima River	85	74	May-Sept	52	136	156	115
nr. Martin 4/	75	72	May-July	42	120	142	104
	65	73	May-June	40	96	115	89
Yakima River	600	76	May-Sept		929	1020	794
at Cle Elum 5/	540	76	May-July		817	920	706
	450	76	May-June		645	750	593
Yakima River	1100	63	May-Sept	596	2116	2324	1751
nr. Parker 6/	1000	65	May-July	451	1800	2081	1550
	830	62	May-June	405	1404	1736	1329
Kachess River	65	65	May-Sept	39	120	141	100
nr. Easton 7/	60	65	May-July	34	109	132	93
	55	68	May-June	32	87	107	81
Cle Elum River	330	80	May-Sept	182	506	506	410
nr. Roslyn 8/	300	81	May-July	145	429	459	371
	250	82	May-June	126	314	355	306
Bumping River	110	85	May-Sept	52	163	172	129
nr. Nile 9/	100	85	May-July	46	140	155	118
	80	83	May-June	42	97	112	96
American River	95	85	May-Sept		120	141	112
nr. Nile	88	85	May-July		103	129	103
	70	82	May-June		73	96	85
Tieton River	190	89	May-Sept	104	267	277	214
at Tieton Dam 10/	160	90	May-July	74	208	232	178
	125	90	May-June	58	145	166	139
Naches River	650	87	May-Sept		908	959	748
nr. Naches 11/	560	83	May-July		770	856	669
	470	84	May-June		579	666	557
Ahtanum Creek	35	90	May-Sept		43	50	39
nr. Tampico 12/	32	91	May-July		37	44	35
	28	93	May-June		29	37	30

4/ Observed flow corrected for storage in Lake Keechelus.
5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.
6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.
7/ Observed flow corrected for storage in Lake Kachess.
8/ Observed flow corrected for storage in Lake Cle Elum.
9/ Observed flow corrected for storage in Bumping Lake.
10/ Observed flow corrected for storage in Rimrock Lake.
11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1978	% 15-Yr. Avg.	Fore-cast period	1977	1976	1975	15-Yr. Average 58-72
			Seasonal Streamflow in Thousands of Acre-Feet				
LOWER COLUMBIA RIVER SYSTEM							
Mill Creek							
nr. Walla Walla	13	72	May-Sept		25	30	18
	10	21	May-July		16	25	14
	9	75	May-June		19	21	12
Lewis River	650	70	May-Sept	750	957	969	933
at Ariel 13/	510	67	May-July	550	801	804	765
	440	68	May-June	480	662	666	643
Cowlitz River **	1290	78	May-Sept		1881	1894	1650
Bl. Mayfield Dam	1090	78	May-July		1548	1619	1391
	900	80	May-June		1169	1218	1123
Cowlitz River **	1600	76	May-Sept	1618	2302	2314	2108
at Castle Rock 14/	1330	76	May-July	1224	1872	1946	1741
	1080	77	May-June	1049	1442	1484	1407
OLYMPIC PENINSULA							
DUNGENESS RIVER SYSTEM							
Dungeness River	105	71	May-Sept		143	139	147
nr. Sequim	85	71	May-July		110	108	119
	60	71	May-June		74	72	85
PUGET SOUND							
SKAGIT RIVER SYSTEM							
Skagit River	1730	85	May-Aug		2522	2123	2037
at Newhalem 15/							
CEDAR RIVER SYSTEM							
Cedar River	60	65	Apr-Sept		91	101	91
at Cedar Falls							
GREEN RIVER SYSTEM							
Green River	145	65	May-Sept		228	293	220
bl. Howard Hanson Dam 16/							
ELWHA RIVER SYSTEM							
Elwha River	300	65	May-Sept		551	501	465
nr. Port Angeles	240	63	May-July		430	391	375

** Forecasts made by National Weather Service, River Forecast Center, Portland, Oregon

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1978 as percent of the same date in 1977 and 1976 and average of record.

Tributary Basin	No. of Courses Average	1978 Snow Water Expressed as percent of 1977	1976	1958-72 Avg
UPPER COLUMBIA BASIN				
Pend Oreille	15	376	75	73
Kettle	12	408	68	89
Spokane	7	256	59	59
Okanogan	35	432	114	100
Methow	1	257	251	121
Chelan	1	215	78	106
Entiat	10	705	87	113
Wenatchee	6	278	48	70
Yakima	13	188	53	56
LOWER COLUMBIA BASIN				
Mill Creek	1	-	33	59
White Salmon	2	242	68	74
Lewis	11	182	51	59
Cowlitz	3	181	70	74
PUGET SOUND				
White	3	221	71	79
Green	2	278	64	58
Snoqualmie	1	131	37	43
Skykomish	2	266	66	82
Skagit	10	231	52	76
Baker	8	147	56	69
Nooksack	1	126	46	-
OLYMPIC PENINSULA				
Morse Creek	1	185	53	-
Elwha	1	155	39	49
Dungeness	1	156	-	50

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured May 1 1978	1977	1976	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	202.4	179.3	236.7	253.2
Columbia	Franklin D. Roosevelt Lake	5232.0	860.4	1688.2	659.3	1654.6
Columbia	Banks Lake	714.9	505.0	464.3	597.3	457.7
Okanogan	Conconully Reservoir	13.0	5.7	7.4	11.3	11.2
Okanogan	Salmon Lake	10.5	7.4	9.3	9.8	7.8
Chelan	Lake Chelan	676.1	242.2	268.8	367.3	225.1
		YAKIMA				
Yakima	Keechelus Lake	157.8	150.4	118.5	104.5	121.2
Kachess	Kachess Lake	239.0	237.2	234.2	218.5	199.2
Cle Elum	Lake Cle Elum	436.9	373.5	441.3	307.3	310.9
Bumping	Bumping Lake	33.7	32.4	26.2	8.0	16.1
Tieton	Rimrock Lake	198.0	170.6	154.6	141.2	146.9
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	793.0	539.5	743.0	751.2
Skagit	Diablo Reservoir	90.6	83.3	86.8	87.1	85.7
Skagit	Gorge Reservoir	9.8	7.8	7.1	8.4	-

1/ Based on Active Storage

* 15-year average 1958-72

SOIL MOISTURE - May

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content Inches as of May 1 1978	1977	1976
OKANOGAN							
Salmon Meadows	19A2M	4500	48	5.4	-	3.8	4.3
Trout Creek	3-M	3600	48	7.3	-	-	4.9*
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	9.1	6.4	-
Helmers	17C2M	4400	48	12.0	9.4	10.1	-
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	12.6	8.0	15.2

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile Depth	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1977	1976	1975
OKANOGAN							
Salmon Meadows	19A02M	4500	48	5.4	-	3.4	3.2
Trout Creek	3-M	3600	48	7.3	3.2	3.4	3.1
YAKIMA							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
WALLA WALLA							
Couse	17C3m	3650	48	11.1	-	-	7.3
Helmers	17C2M	4400	48	12.0	-	-	6.5
WENATCHEE							
Upper Wheeler	20B7M	4400	48	12.7	6.6	-	8.6

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1977 2/ Observed	FALL Departure	WINTER Nov.-1977--Mar.-1978 Observed	WINTER Departure	SPRING April 1978 Observed	SPRING Departure
Columbia in Canada	3.41	-1.61	13.30	-2.21	2.04	+0.33
Pend Oreille - Spokane	4.10	+0.06	17.28	-0.27	2.57	+0.75
Northeastern Washington	2.06	-0.41	10.62	+1.22	1.72	+0.46
Southeastern Washington	2.51	0.0	11.25	+0.82	3.83	+2.30
Central Washington	1.08	+0.11	7.55	+2.27	1.29	+0.64
North Central Washington	1.39	-0.21	8.13	+1.59	1.91	+1.06
Northwest Slope Cascades	11.16	-2.05	52.34	-3.05	6.00	-0.64
Southwest Slope Cascades	9.42	+0.74	40.82	-0.82	5.85	+0.85

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

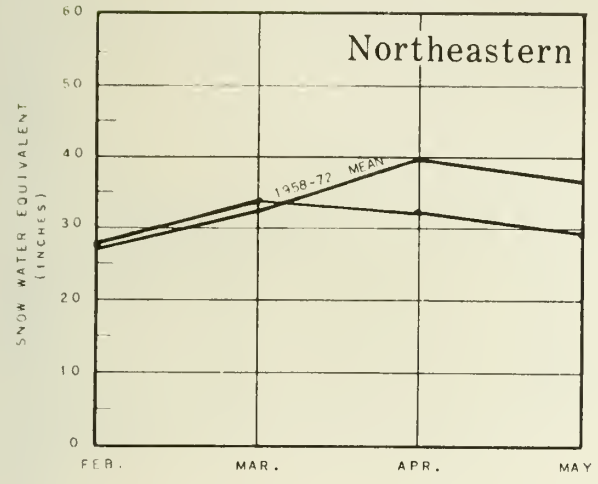
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

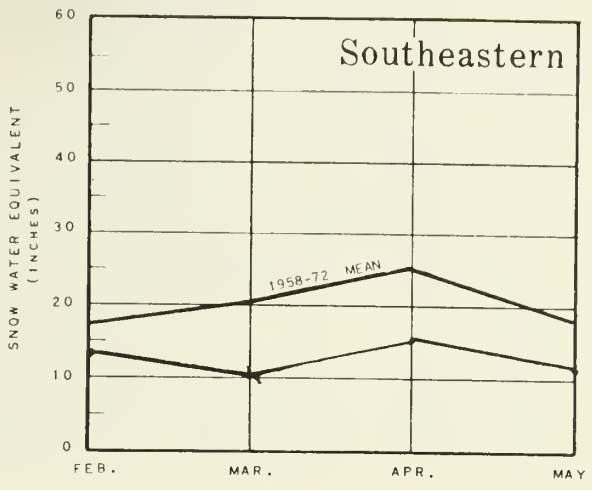
2/ - Departure from 15-year (1958-72) drainage division average.

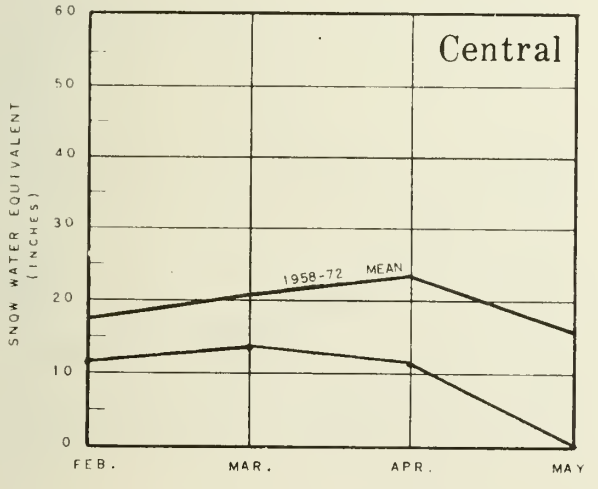
WASHINGTON SNOW COVER

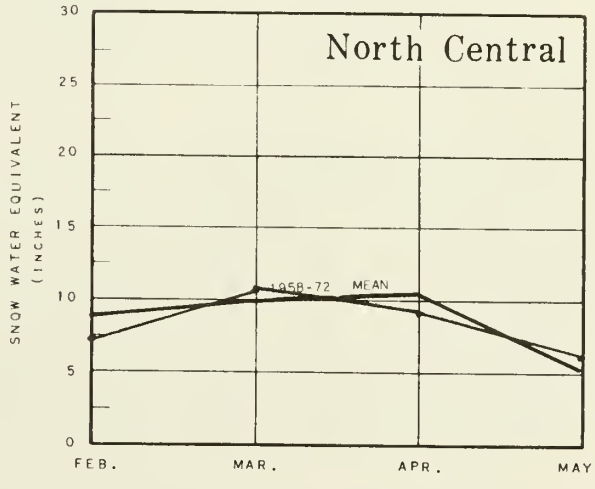
1978

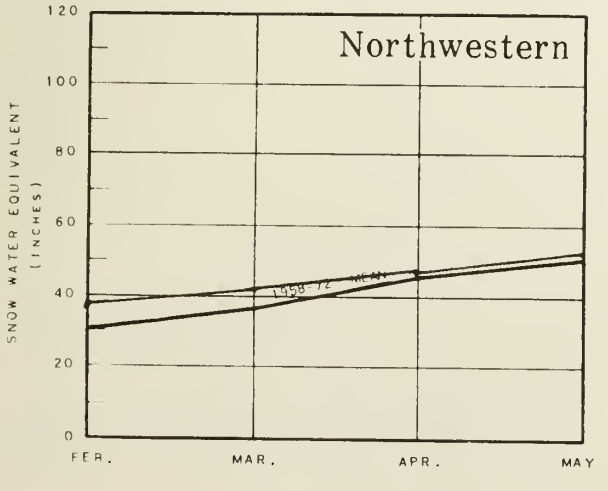
DRAINAGE AREAS

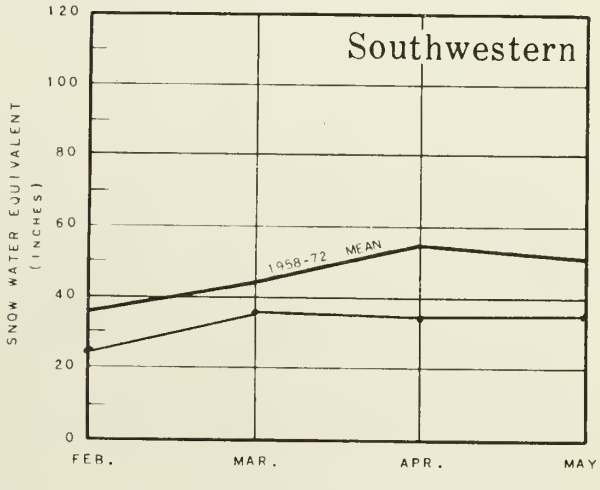










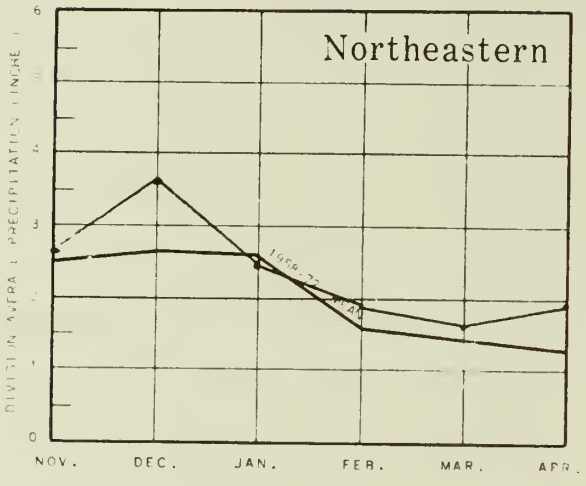


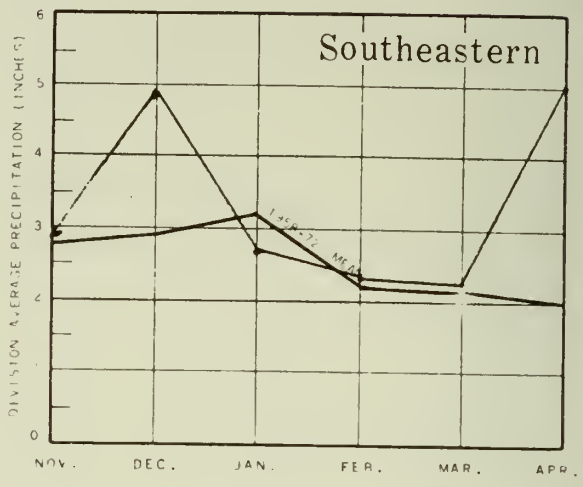
Selected Snow Survey Courses by Soil Conservation Service

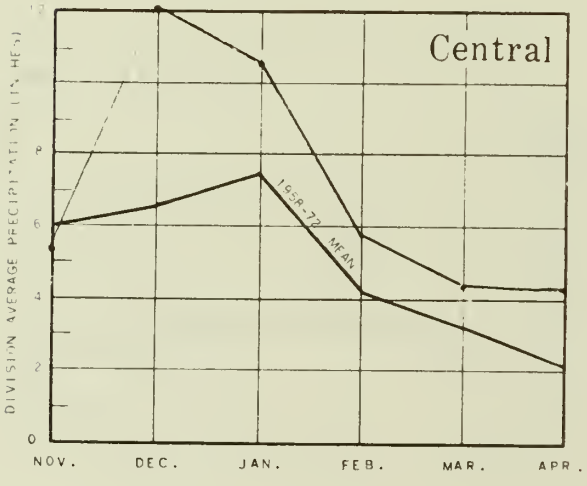
WASHINGTON VALLEY PRECIPITATION

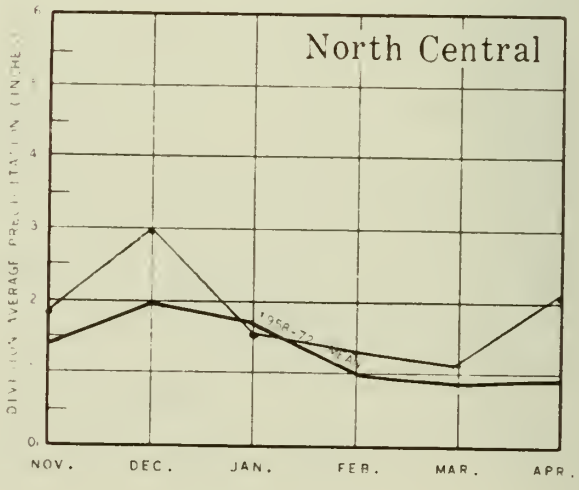
1977 - 1978

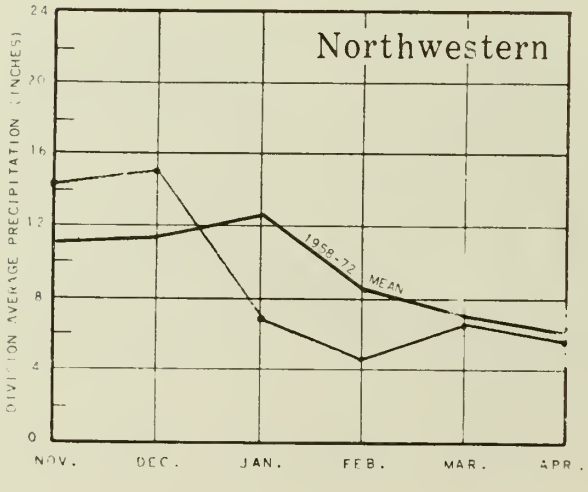
DRAINAGE AREAS

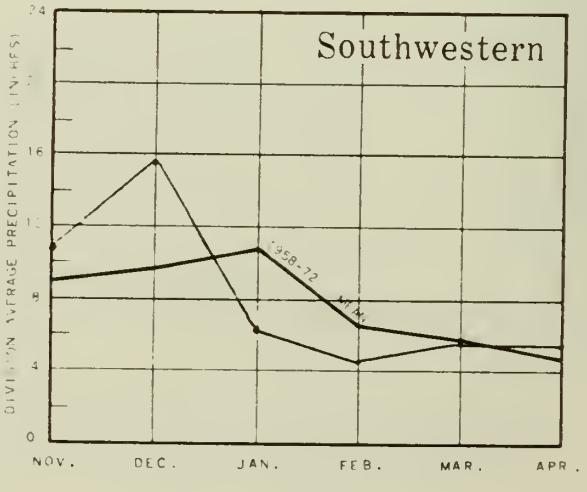






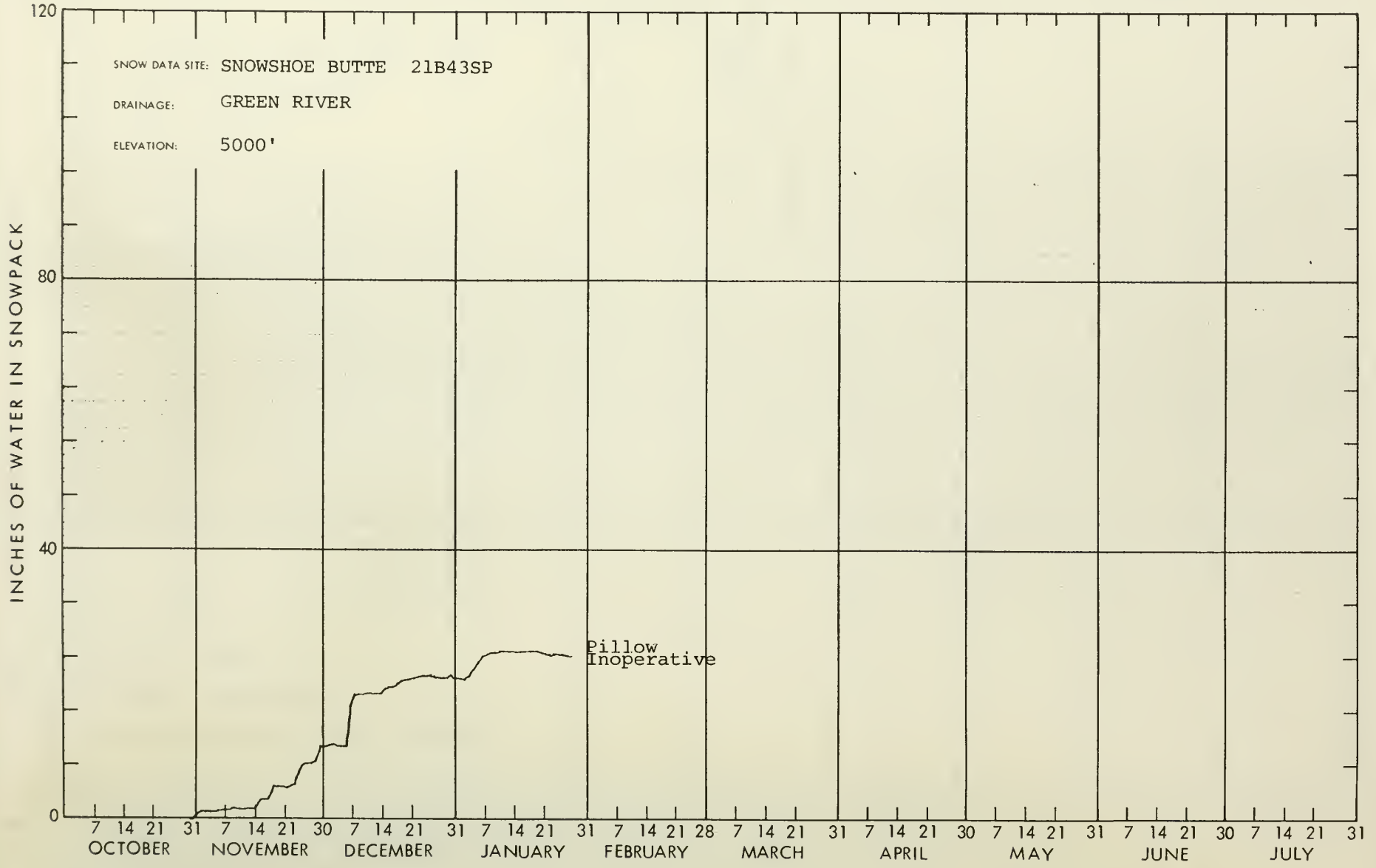




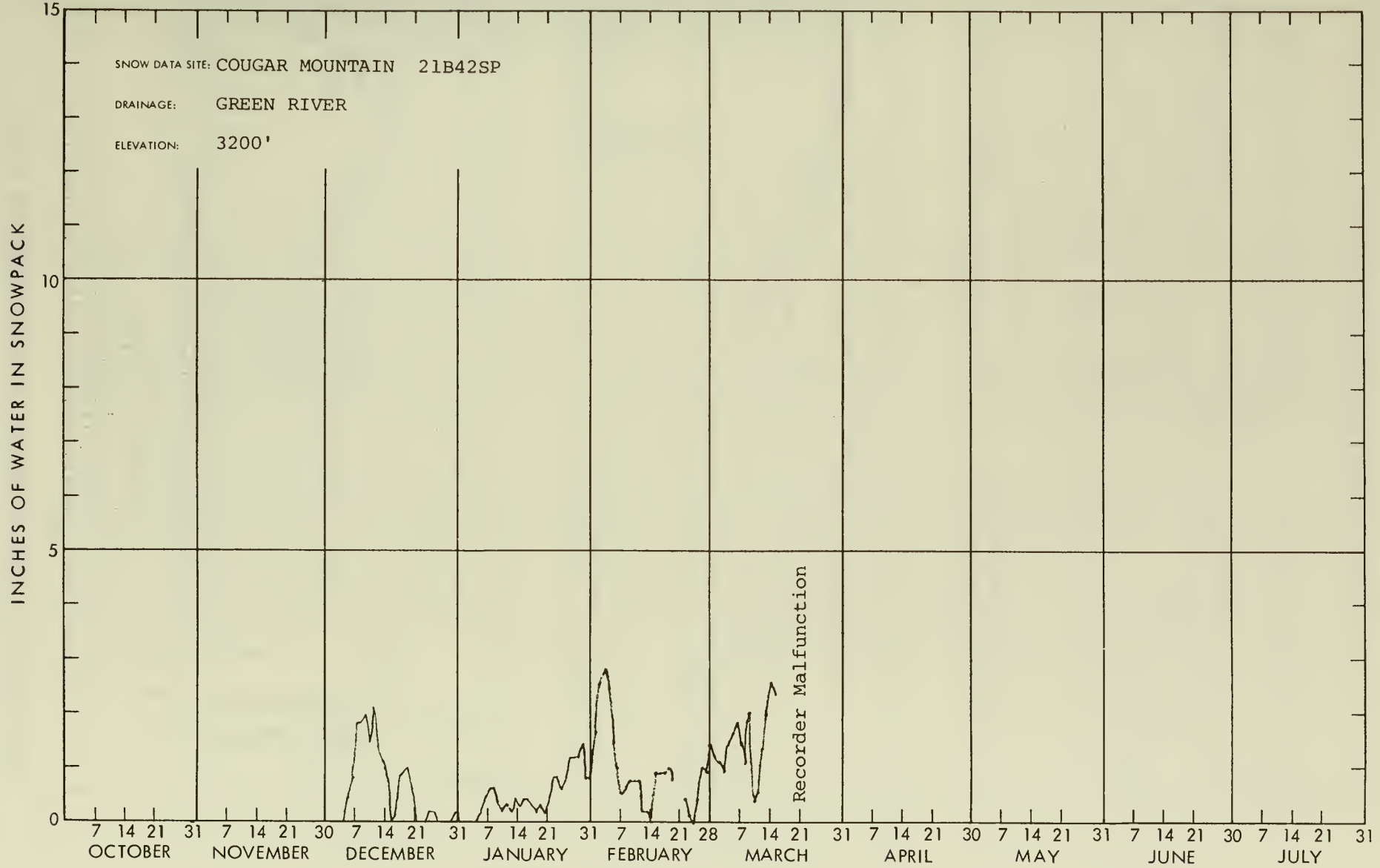


Preliminary Analysis by National Weather Service

WSFB-X13D


SNOW DATA SITE: SNOWSHOE BUTTE 21B43SP
DRAINAGE: GREEN RIVER
ELEVATION: 5000'
INCHES OF WATER IN SNOWPACK
120
80
40
0
Pillow Inoperative
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY

WSFB-X13A


SNOW DATA SITE: COUGAR MOUNTAIN 21B42SP
DRAINAGE: GREEN RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
Recorder Malfunction
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY

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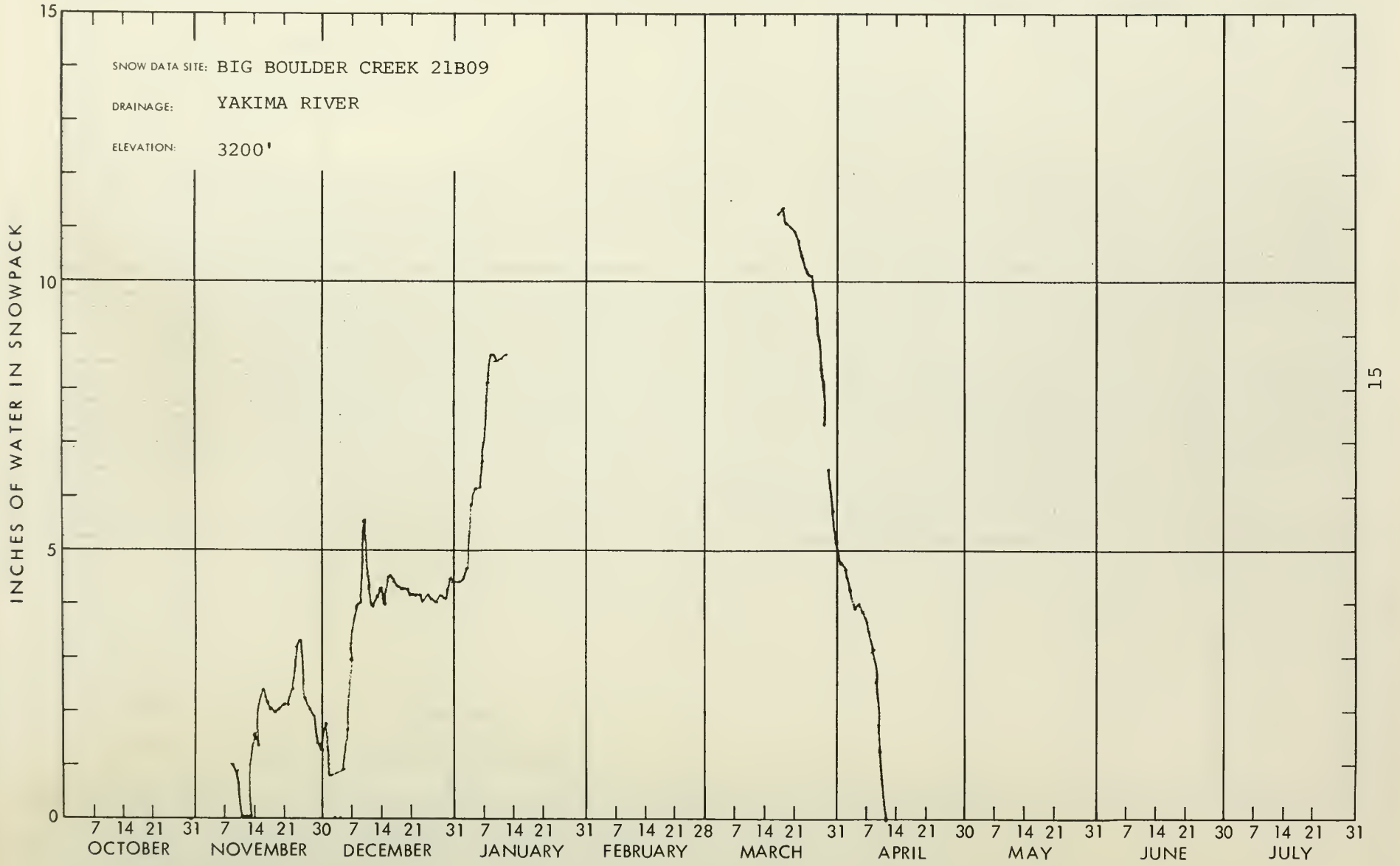
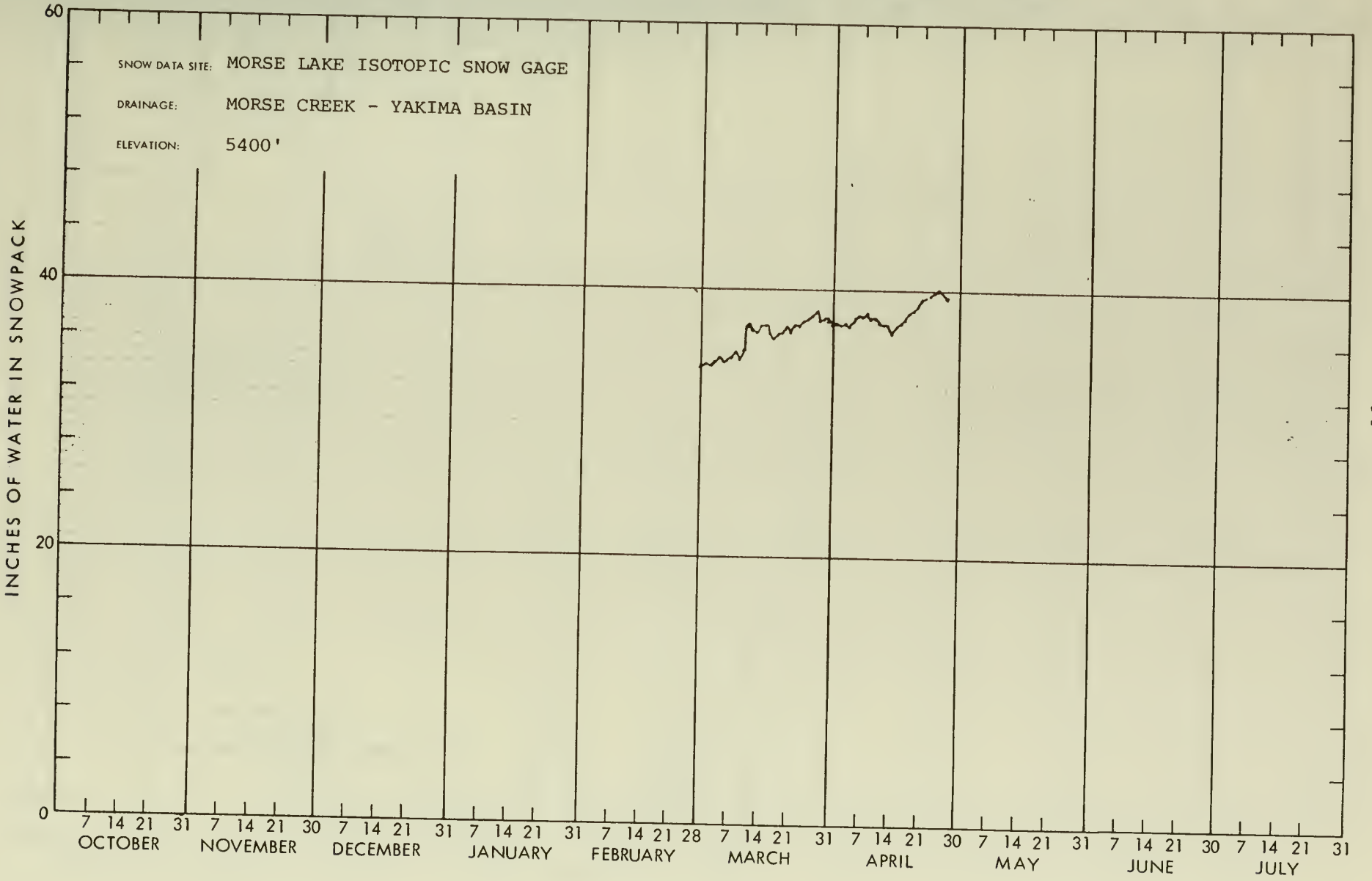
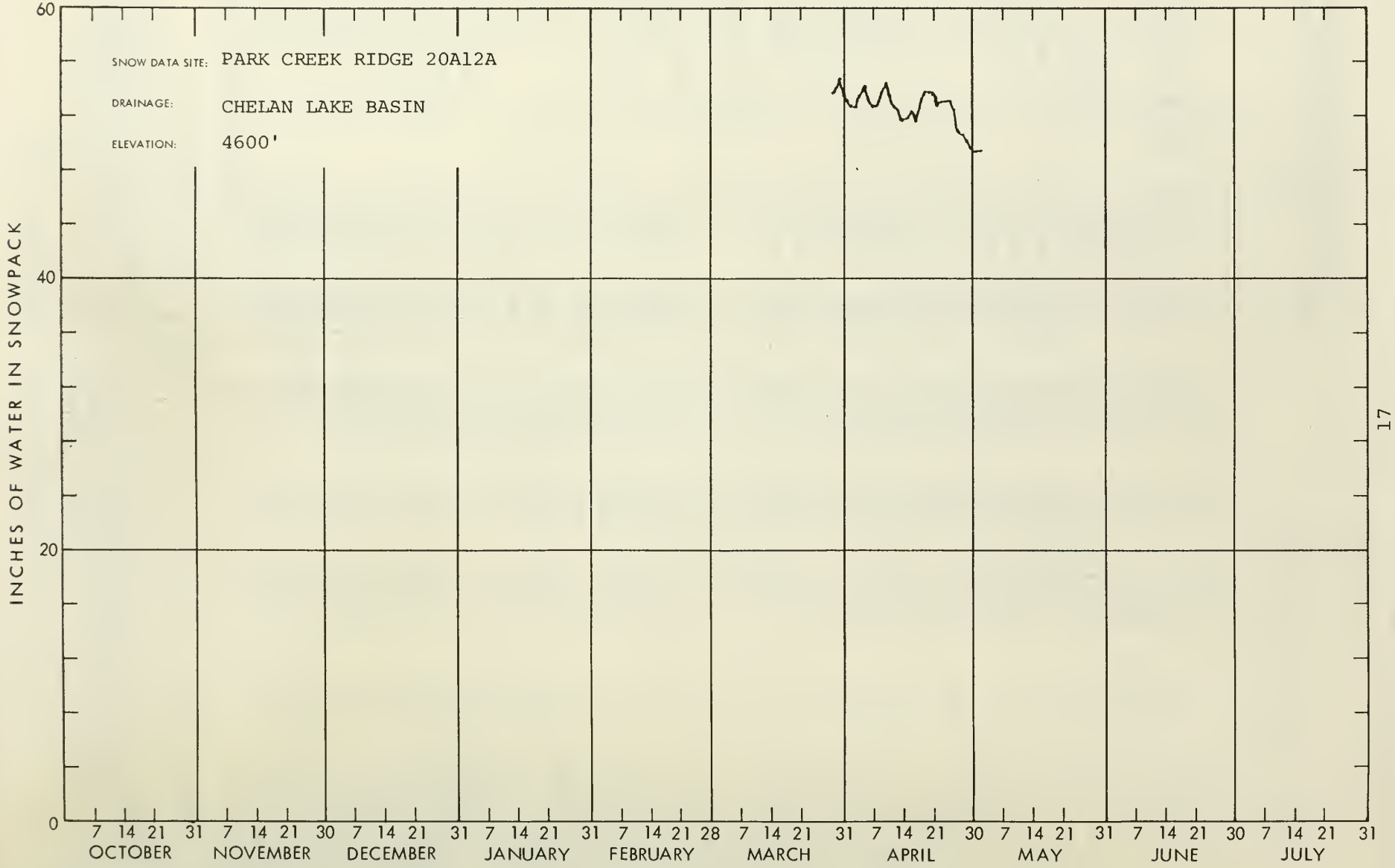
WSFB-X13A


SNOW DATA SITE: BIG BOULDER CREEK 21B09
DRAINAGE: YAKIMA RIVER
ELEVATION: 3200'
INCHES OF WATER IN SNOWPACK
15
10
5
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
15

WSFB-X13C


SNOW DATA SITE: MORSE LAKE ISOTOPIC SNOW GAGE
DRAINAGE: MORSE CREEK - YAKIMA BASIN
ELEVATION: 5400'
INCHES OF WATER IN SNOWPACK
60
40
20
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER
NOVEMBER
DECEMBER
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY

WSFB-X13C


SNOW DATA SITE: PARK CREEK RIDGE 20A12A
DRAINAGE: CHELAN LAKE BASIN
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
60
40
20
0
7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 31 7 14 21 28 7 14 21 31 7 14 21 30 7 14 21 31 7 14 21 30 7 14 21 31
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY

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SNOW DATA TO MAY 1, 1978 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/1	71	37.8	18.6	49.6
Baree Midway	15B16	4600	5/1	43	20.8	11.7	35.1
Baree Trail	15B15	3800	5/1	0	0.0	0.0	1.2
Benton Meadow	16A02	2344	4/27	0	0.0	0.0	0.0
Benton Spring	16A03	4900	4/27	24	10.7	0.0	15.7
Boyer Mountain	17A02	5250	4/26	57	27.2	2.1	26.6
Brush Creek Timber	14A13	5000	4/26	10	4.1	0.0	8.2
Bunchgrass Meadow	17A01	5000	4/28	58	28.9	6.5	30.4
Heart Lake Trail	14C10	4800	4/22	32	13.3	3.3	19.0
Hoodoo Basin	15C10	6000	4/27	104	52.4	20.6	55.2
Hoodoo Creek	15C01	5900	4/27	95	45.4	18.4	52.2
Lookout	15B02	5250	4/14	69	30.3	15.3	-
			4/28	59	29.6	8.3	37.7
Nelson	19-Can	3050	4/27	6.3	2.4	1.5	7.4*
Schweitzer Bowl	16A06	4500	4/28	38	17.8	0.0	26.6
Schweitzer Ridge	16A05	6100	4/28	103	51.2	14.5	50.6
Smith Creek	16A01	4800	4/28	83	36.8	15.2	47.9
Winchester Creek	17A03	2970	4/26	1.5	0.7	0.0	1.6
KETTLE RIVER							
Barnes Creek	90-Can	5300	4/27	48	21.4	14.0	21.2*
Big White Mtn.	154-Can	5500	5/1	52	21.7	10.3	21.7*
Bluejoint Mtn.	244-Can	7500	4/27	74	31.4	11.3	32.5*
Boulder Road	18A02	1450	4/24	0	0.0	0.0	0.0
Butte Creek	18A03	4070	4/24	18	6.0	0.0	5.9
Cabin Creek	18A08	3170	4/24	3.2	0.8	0.0	1.5
Carmi	126-Can	4100	5/1	3.1	1.4	0.0	2.1*
Farron # 1	17-Can	4000	4/27	22	9.0	1.2	8.5*
Farron # 2	243-Can	4000	4/27	25	10.2	0.9	9.6*
Goat Creek	18A04	3595	4/24	0	0.0	0.0	0.0
Graystoke Lake	5-Can	5950	4/28	44	16.9	10.0	23.7*
Monashee Pass	48A-Can	4500	4/27	30	13.1	8.0	13.3*
Old Glory Mountain	42-Can	7000	5/1	Not Measured		5.5	30.9*
Snow Caps Creek	18A05	2150	4/24	0	0.0	0.0	0.0
Snow Caps Trail	18A06	2720	4/24	0	0.0	0.0	0.0
Summit G.S.	18A07	4600	4/24	16	5.6	0.0	6.0
Trapping Creek Lower	166-Can	3050	5/1	0	0.0	0.0	0.0*
Trapping Creek Upper	165-Can	4450	5/1	12	4.8	0.0	6.5*

\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

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SNOW DATA TO MAY 1, 1978 - APPENDIX 2

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
SPOKANE RIVER							
Above Burke	15B08	6100	5/29	28	13.4	4.7	-
Copper Ridge	16B02	4800	4/27	18	9.2	0.0	27.3
Forty-nine Meadows	15B03	5000	5/2	32	12.8	4.0	30.3
Fourth of July Summit	16B03	3100	4/29	0	0.0	0.0	-
Granite Peak	15B13A	6000	5/2	81	33.0	15.5	48.3
Lookout	15B02	5250	4/14	69	30.3	15.3	-
			4/28	59	29.6	8.3	37.7
Lost Lake	15B14A	6000	5/2	105	44.8	19.3	62.0
Lower Sands Creek	16B01	3400	4/27	20	9.7	7.3	16.0
OKANOGAN RIVER							
Aberdeen Lake	6A-Can	4300	5/1	2.4	0.7	0.0	1.8*
Blackwall Mountain	100-Can	6250	5/1	69	33.9	17.4	38.3*
Bouleau Lake	234-Can	4580	4/30	32	13.1	5.7	14.2*
Brenda Mine	193-Can	4800	4/27	26	11.7	0.0	10.4*
Brookmere	27-Can	3200	5/1	11	3.1	1.2	5.9*
Carrs Landing Upper	168-Can	3200	4/29	0	0.0	0.0	0.0*
Enderby	130-Can	6250	4/27	108	46.0	29.9	43.4*
Esperon Creek Lower	164-Can	4400	4/29	21	8.5	0.0	10.6*
Esperon Creek Middle	163-Can	4700	4/29	28	12.6	0.0	13.8*
Esperon Creek Upper	162-Can	5400	4/29	43	18.4	4.7	20.4*
Freezeout Meadows New	20A38	5000	4/25	55	24.5	14.3	31.0
Graystoke Lake	5-Can	5950	4/28	44	16.9	10.0	23.7*
Hamilton Hill	107-Can	4900	4/27	34	16.6	4.6	13.1*
Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Isintok Lake	152-Can	5510	4/29	22	9.1	0.0	7.5*
Lost Horse Mountain	105-Can	6300	5/1	38	10.4	3.8	10.9*
Loup Loup	19A07	4650	4/28	14	6.4	0.0	-
McCulloch	4-Can	4200	5/1	1.6	0.5	0.0	2.9*
Missezula Mountain	106-Can	5100	4/25	25	11.4	0.0	5.4*
Mission Creek	5A-Can	6000	4/28	57	23.5	14.7	22.0*
Monashee Pass	48A-Can	4500	4/27	30	13.1	8.0	13.3*
Mount Kobau	156-Can	5950	4/27	46	16.8	2.1	13.7*
Mutton Creek No. 1	19A01	5700	4/26	40	15.7	0.0	10.9
Mutton Creek No. 2	19A04	6000	4/26	59	17.1	0.0	15.5
Mutton Creek No. 2 SP	19A11SP	6000	4/26	-	22.2	0.0	-
New Copper Mountain	46A-Can	4300	4/26	0	0.0	0.0	1.8*
New Penticton Res. #2	183-Can	5225	4/29	28	9.0	1.4	9.5*
Nickel Plate Mtn.	47-Can	6200	4/30	37	13.2	2.6	8.0*
Oyama Lake	203-Can	4400	4/28	9.1	3.4	0.0	3.9*
Postill Lake	55-Can	4500	5/1	13	5.2	2.7	6.9*

\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1978 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average #
OKANOGAN RIVER (Cont.)							
Quartette Lake	34-Can	4000	4/26	20	9.1	4.1	11.6*
Rusty Creek	19A03	4000	4/27	2.2	0.7	0.0	0.6
Salmon Meadows	19A02	4500	4/26	18	6.6	0.0	5.4
Silver Star Mountain	99-Can	6050	4/30	77	36.3	14.6	28.2*
Summerland Reservoir	3A-Can	4200	4/29	16	6.7	0.0	6.9*
Trout Creek	3-Can	4700	4/28	15	5.7	0.2	5.3*
Vaseux Creek	233-Can	4600	4/29	10	3.6	0.0	2.8*
White Rocks Mountain	70-Can	6000	4/27	63	26.5	6.9	27.9*
METHOW RIVER							
Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Loup Loup	19A07	4650	4/28	14	6.4	0.0	-
Mutton Creek No. 1	19A01	5700	4/26	40	15.7	0.0	10.9
Mutton Creek No. 2	19A04	6000	4/26	49	17.1	0.0	15.6
Mutton Creek No. 2 SP	19A11SP	6000	4/26	-	22.2	0.0	-
Rusty Creek	19A03	4000	4/27	2.2	0.7	0.0	0.6
Salmon Meadows	19A02	4500	4/26	18	6.6	0.0	5.4
CHELAN LAKE BASIN							
Rainy Pass	20A09	4780	4/25	93	46.8	21.8	44.3
ENTIAT RIVER							
Blue Creek G.S.	20B28a	5425	4/28	84	42.8	11.9	New
Brief	20B19	1600	4/25	0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	4/28	78	36.7	9.9	41.0
Entiat River Trail +	20A34a	3325	4/28	24	11.3	0.0	9.7
Four Mile Ridge +	20B27a	6800	4/28	94	47.9	4.0	-
Fox Camp +	20A36a	6510	4/28	154	78.5	19.5	63.5
Pope Ridge	20B20	3540	4/28	22	10.2	0.0	8.2
Pugh Ridge +	20A32a	6725	4/28	87	44.4	11.2	38.7
Shady Pass	20A37	6200	4/27	75	38.2	2.2	-
Snow Brushy +	20A35a	3910	4/28	69	32.4	6.9	30.8
Tommy Creek +	20B21a	4900	4/28	52	26.5	0.0	22.5

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1978 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average #
WENATCHEE RIVER							
Berne-Mill Creek	21B23	2925	4/27	37	17.9	6.0	21.1
Berne-Mill Creek New	21B41SP	3240	4/27	14	7.0	0.0	17.7
Blewett Pass No. 2	20B02	4270	4/13	20	9.2	2.2	13.0
			4/25	14	6.8	0.0	9.5
Chiwaukum G.S.	20B16	1810	4/27	0	0.0	0.0	1.8
Fish Lake	21B04	3371	5/1	Not Measured		2.0	26.7
Lake Wenatchee	20B05	1970	4/27	2.7	1.1	0.0	1.6
Leavenworth R.S.	20B17	1127	4/27	0	0.0	0.0	0.0
Merritt	20B18	2140	4/27	0	0.0	0.0	3.8
Stevens Pass	21B01	4070	4/12	94	43.3	25.6	55.2
			4/27	92	45.5	22.9	55.8
Stevens Pass Sand Shed	21B45	3700	4/12	60	28.7	12.2	-
			4/27	51	25.2	7.6	-
SQUILCHUCK CREEK							
Beehive Springs	20B03	4400	4/28	3.4	1.5	0.0	1.7
Scout-A-Vista	20B04	3400	4/28	0	0.0	0.0	0.4
STEMILT CREEK							
Jump-Off	20B08	4450	4/28	13	5.2	0.0	2.8
Stemilt Slide	20B06	5000	4/27	16	7.4	0.0	7.1
Upper Wheeler	20B07	4400	4/27	0	0.0	0.0	1.0
COLOCKUM CREEK							
Colockum Creek Upper	20B22	5300	4/28	20	10.0	0.0	-
Colockum Creek Lower	20B23	4300	4/28	3.5	1.5	0.0	-
Trough # 2	20B25SP	5310	4/28	30	15.0	0.0	-
YAKIMA RIVER							
Big Boulder Creek	21B09	3200	4/28	0	0.0	0.0	7.4
Blewett Pass No. 2	20B02	4270	4/13	20	9.2	2.2	13.0
			4/25	14	6.8	0.0	9.5
Bumping Lake	21C08	3450	4/13	14	6.0	0.0	13.4
			4/27	7	3.1	0.0	9.4
Bumping Lake New	21C36	3400	4/13	22	9.1	0.0	-
			4/27	15	6.9	0.0	15.0
Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Corral Pass	21B13	6000	4/28	71	33.5	15.6	-
Fish Lake	21B04	3371	5/1	Not Measured		2.0	26.7

Average based on 1958-72 average

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1978 - APPENDIX 5

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
YAKIMA RIVER (Cont.)							
Joe Lake +	21B46a	4624	4/29	130	62.4	40.0	-
Lake Cle Elum	21B14M	2200	4/27	0	0.0	0.0	0.0
Lemah Creek +	21B47a	3327	4/29	12	5.8	14.0	-
Morse Lake	21C17	5400	4/28	103	51.2	18.0	65.1
Olallie Meadows	21B02	3625	4/12	51	23.4	20.2	48.4
			5/1	41	20.9	15.9	48.6
Satus Pass	20D01	4030	4/28	0	0.0	-	1.9
Stampede Pass SP	21B10	3860	4/13	55	28.4	12.0	43.4
			4/27	48	25.2	6.9	43.4
Tunnel Avenue	21B08	2450	4/13	19	7.3	0.0	20.1
			4/27	0	0.0	0.0	16.0
Van Epps Pass +	20B26a	5925	4/29	98	47.0	21.8	-
Waptus Lake +	21B49a	3024	4/29	33	15.8	12.9	-
White Pass (E. Side)	21C28	4500	4/13	38	16.9	6.3	26.0
			4/27	37	16.5	0.0	25.9
LOWER COLUMBIA DRAINAGE							
ASOTIN CREEK							
Spruce Springs	17C04	5700	4/24	35	16.1	1.8	25.8
MILL CREEK							
Tollgate	18D3M	5070	4/25	24	11.2	0.0	18.9
KLICKITAT RIVER							
Satus Pass	20D01	4030	4/28	0	0.0	-	1.9
WHITE SALMON RIVER							
Cultus Creek	21C12	4000	4/25	87	39.9	18.3	48.9
Surprise Lakes	21C13A	4250	4/25	78	35.3	13.2	52.9
WIND RIVER							
Old Man Pass	21D19	3100	4/25	0	0.0	0.0	12.6
LEWIS RIVER							
Blue Lake +	21C22a	4800	4/25	180	82.2	39.1	92.4
Bob's Trail	21C21	2200	4/25	0	0.0	0.0	7.8
Calamity Ridge +	22D01a	2500	4/25	0	0.0	0.0	1.3

\# Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1978 - APPENDIX 6

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE						Water Content (inches)	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average #
LEWIS RIVER (Cont.)							
Council Pass +	21C18a	4200	4/25	50	23.0	13.5	38.8
Cultus Creek	21C12	4000	4/25	87	39.9	18.3	48.9
Divide Meadow +	21C29a	5600	4/25	106	49.8	21.6	65.5
Grand Meadow	21C25	3500	4/25	11	3.9	0.0	22.4
Lone Pine Shelter	21C26	3800	4/25	58	23.1	15.9	46.3
Marble Mountain +	22C05a	3200	4/25	10	4.9	4.9	33.2
New Muddy River	22C06	2000	4/25	0	0.0	0.0	0.8
Old Man Pass	21D19	3100	4/25	0	0.0	0.0	12.6
Plains of Abraham +	22C01a	4400	4/25	156	76.4	32.9	76.9
Smith Creek Road	22C04	2100	4/25	0	0.0	0.0	5.3
Spencer Meadow +	21C20a	3400	4/25	3	0.9	5.4	16.1
Surprise Lakes	21C13A	4250	4/25	78	35.3	13.2	52.9
Table Mountain +	21C24a	4200	4/25	82	36.9	16.2	40.3
Timbered Peak +	21D18a	3000	4/25	0	0.0	1.8	9.9
COWLITZ RIVER							
Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Plains of Abraham +	22C01a	4400	4/25	156	76.4	32.9	76.9
White Pass (E. Side)	21C28	4500	4/13	38	16.9	6.3	26.0
			4/27	37	16.5	0.0	25.9
PUGET SOUND DRAINAGE							
WHITE RIVER							
Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Corral Pass	21B13	6000	4/28	71	33.5	15.6	-
Morse Lake	21C17	5400	4/28	103	51.2	18.0	65.1
GREEN RIVER							
Cougar Mountain SP	21B42SP	3200	5/1	0	0.0	-	-
Snowshoe Butte SP	21B43SP	5000	5/1	85	40.2	21.1	-
Stampede Pass SP	21B10	3860	4/13	55	28.4	12.0	43.4
			4/27	48	25.2	6.9	43.4
SNOQUALMIE RIVER							
Olallie Meadows	21B02	3625	4/12	51	23.4	20.2	48.4
			5/1	41	20.9	15.9	48.6
SKYKOMISH RIVER							
Stevens Pass	21B01	4070	4/12	94	43.3	25.6	55.2
			4/27	92	45.5	22.9	55.8
Stevens Pass Sand Shed	21B45	3700	4/12	60	28.7	12.2	-
			4/27	51	25.2	7.6	-

Average based on 1958-72 average

\+ Snow water equivalent estimated from aerial stadia observation.

USDA SCS PORTLAND, OREGON 1973

SNOW DATA TO MAY 1, 1978 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Average #
SKAGIT RIVER							
Beaver Creek Trail	21A04	2200	4/25	0	0.0	0.0	4.8
Beaver Pass	21A01	3680	4/25	39	17.2	6.6	34.0
Brown Top +	21A28a	6000	4/25	109	50.9	31.0	-
Devils Park	20A04A	5900	4/25	96	45.4	22.1	49.5
Freezeout Cr. Trail	20A01	3500	4/25	4.3	1.7	0.4	8.2
Freezeout Meadows New	20A38	5000	4/25	55	24.5	14.4	31.0
Granite Creek	21A29	3500	4/25	12	5.1	2.4	-
Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Klesilkwa	35B-Can	3700	5/1	0	0.0	0.0	10.2*
Meadow Cabins	20A08	1900	4/25	0	0.0	0.0	1.3
New Hozomeen Lake	21A30	2800	4/25	0	0.0	0.0	-
New Tashme	26A-Can	2500	4/25	0	0.0	0.0	4.7*
Quartette Lake	34-Can	4000	4/26	20	9.1	4.1	11.6*
Rainy Pass	20A09	4780	4/25	93	46.8	21.8	44.3
Thunder Basin	20A07	4200	4/25	45	18.9	10.5	25.5
BAKER RIVER							
Baker Pass +	21A27a	4900	5/1	Marker Missing		45.4	-
Dock Butte	21A11A	3800	4/26	96	46.7	35.0	77.4
Easy Pass	21A07A	5200	4/26	181	85.8	42.2	93.3
Jasper Pass	21A06A	5400	4/25	172	79.8	48.9	102.7
Komo Kulshan	21A17	800	4/26	0	0.0	0.0	0.7
Marten Lake	21A09A	3600	4/27	112	52.8	43.7	83.8
Mount Blum +	21A18a	5800	4/26	148	69.6	40.3	-
Panorama New	21A26	4300	4/15	107	52.2	36.3	-
			4/30	89	44.3	35.2	-
Rocky Creek	21A12A	2100	4/26	0	0.0	8.8	22.6
Schreibers Meadow	21A10A	3400	4/26	80	37.0	32.4	67.5
S. F. Thunder Creek	21A14A	2200	4/26	0	0.0	0.0	1.1
Sulphur Creek	21A13	1600	4/26	0	0.0	0.0	6.4
Three Mile Creek	21A15	1600	4/26	0	0.0	0.0	0.0
Watson Lakes	21A08A	4500	4/26	107	50.8	35.7	76.9
NOOKSACK RIVER							
Panorama New	21A26	4300	4/15	107	52.2	36.3	-
			4/30	89	44.3	35.2	-

\# Average based on 1958-72 average
* Average for years of record
\+ Snow water equivalent estimated from aerial stadia observation

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO MAY 1, 1978 - APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
						Last Year	Average #
OLYMPIC PENINSULA							
DUNGENESS RIVER							
Deer Park	23B04	5200	4/28	30	12.2	7.8	24.2
MORSE CREEK							
Cox Valley	23B14	4500	4/26	71	30.5	16.5	-
ELWHA RIVER							
Hurricane	23B03	4500	4/26	31	13.2	8.5	26.9

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WATER SUPPLY OUTLOOK FOR WASHINGTON

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Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF
JUNE 1, 1978

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originotes as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder af the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made manthly ar semi-monthly from January 1 through June 1 in most states. There are about 1900 snow caurses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key lacations.

Detailed data on snaw course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Partland, Oregon 97209.

Copies of state and local reports may also be obtoined from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3U08, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P.O. Box 98, Bozeman, Mantana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.

USDA-SCS-PORTLAND, OR 1977

WATER SUPPLY OUTLOOK FOR WASHINGTON

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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WASHINGTON, D C

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SPOKANE, WASHINGTON

In Cooperation with

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STATE OF WASHINGTON

Report prepared by

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SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201

USDA SCS-PORTLAND OR 1976 M7-L-220788

WATER SUPPLY OUTLOOK

State of Washington

June 1, 1978

The water supply picture in the state has not changed markedly from that reported last month. Precipitation was generally above normal which is favorable to an improved water supply picture and runoff was substantially below normal which means that the water in the mountains is still up there and is yet to come down. Very few snow courses are measured as of June 1, and those indicate that there is generally an above normal snowpack at the higher elevations. The major reservoirs, both irrigation and power, are in good shape and are being managed according to plan. Uncontrolled releases are not expected and most should fill on schedule.

THIS IS THE LAST WATER SUPPLY OUTLOOK REPORT FOR 1978. IF YOU WISH TO RECEIVE THESE REPORTS NEXT YEAR, PLEASE RETURN THE BACK COVER OF THE MAY 1 REPORT IF YOU HAVEN'T ALREADY DONE SO.

SNOW COVER

Most June 1 snow surveys are made in the tributary areas of British Columbia and Montana. Most of the snow at the Washington measurement sites is normally gone by May 15, and this year was normal in that respect. The June 1 snowpack is 11 percent above average on the Pend Oreille River Drainage, 10 percent above in the Kettle River Basin, and 44 percent above on the Okanogan Watershed. No measurements were made in the Methow and Chelan Drainages, but at Stevens Pass the snowpack is 32 percent below average. At Stampede Pass, between the Yakima and Green Watersheds, the snow was gone by June 1, but on May 25, the snowpack was 10 percent of normal. The only other watershed that has scheduled measurements is the Baker River but the readings from these have been delayed.

PRECIPITATION

Rainfall during the month of May was above normal on all watersheds except the eastern slopes of the Cascades. As reported by the National Weather Service, rainfall in the Canadian portion of the Columbia above Castlegar was 19 percent above normal - the same as last month. In the Pend Oreille-Spokane Drainage Division, rainfall was 53 percent above average but in the Northeastern Washington Division, rainfall was only 15 percent above average. Rainfall in the Okanogan Drainage Division was 17 percent below average and in the Central Washington Division, 37 percent below normal. This is in sharp contrast to the precipitation readings by the Bureau of Reclamation at their reservoir sites. The five Bureau precipitation readings indicate that rainfall was 100 percent greater than average.

RESERVOIRS

It appears that all reservoirs are either full or are expected to fill with the runoff.

STREAMFLOW

The cool weather of May has reduced runoff to sub normal amounts at all stations in Washington. This means that the amount of water to be expected is as forecast last month. For example, the May-September forecast for the Columbia River at Birchbank was 86 percent of normal and the May flow at Birchbank was also 86 percent.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	Measured June 1 1978	1977	1976	Normal*
		COLUMBIA				
Spokane	Coeur d'Alene Lake	225.1	190.0	239.6	269.1	299.8
Columbia	Franklin D. Roosevelt Lake	5232.0	2211.4	2580.9	3740.7	3239.1
Columbia	Banks Lake	714.9	527.9	616.0	648.0	446.7
Okanogan	Conconully Reservoir	13.0	9.2	6.5	13.0	10.4
Okanogan	Salmon Lake	10.5	10.5	9.4	10.5	9.3
Chelan	Lake Chelan	676.1	470.3	391.3	487.8	481.4
		YAKIMA				
Yakima	Keechelus Lake	157.8	158.9	140.6	143.7	147.5
Kachess	Kachess Lake	239.0	242.2	223.6	226.5	226.2
Cle Elum	Lake Cle Elum	436.9	441.2	391.8	387.1	387.3
Bumping	Bumping Lake	33.7	34.7	34.9	25.8	27.7
Tieton	Rimrock Lake	198.0	199.0	161.9	177.4	172.0
		PUGET SOUND				
Skagit	Ross Reservoir	1404.1	1068.0	689.9	1034.1	708.6
Skagit	Diablo Reservoir	90.6	84.9	86.8	86.6	84.8
Skagit	Gorge Reservoir	9.8	8.2	7.9	9.2	-

1/ Based on Active Storage

* 15-year Average 1958-72

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL Sept-Oct 1977 2/ Observed	FALL Departure	WINTER Nov.-1977--Mar.-1978 Observed	WINTER Departure	SPRING Apr-May 1978 2/ Observed	SPRING Departure
Columbia in Canada	3.41	-1.61	13.30	-2.21	4.13	+0.66
Pend Oreille - Spokane	4.10	+0.06	17.28	-0.27	5.67	+1.80
Northeastern Washington	2.06	-0.41	10.62	+1.22	3.74	+0.73
Southeastern Washington	2.51	0.0	11.25	+0.82	5.27	+2.34
Central Washington	1.08	+0.11	7.55	+2.27	1.73	+0.38
North Central Washington	1.39	-0.21	8.13	+1.59	2.67	+0.90
Northwest Slope Cascades	11.16	-2.05	52.34	-3.05	10.27	-0.13
Southwest Slope Cascades	9.42	+0.74	40.82	-0.82	9.66	+2.35

Northeastern Washington - Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.

Southeastern Washington - Touchet, Tucannon and Palouse Drainages.

Central Washington - Yakima, Wenatchee and Chelan Drainages.

North Central Washington - Methow and Okanogan Drainages.

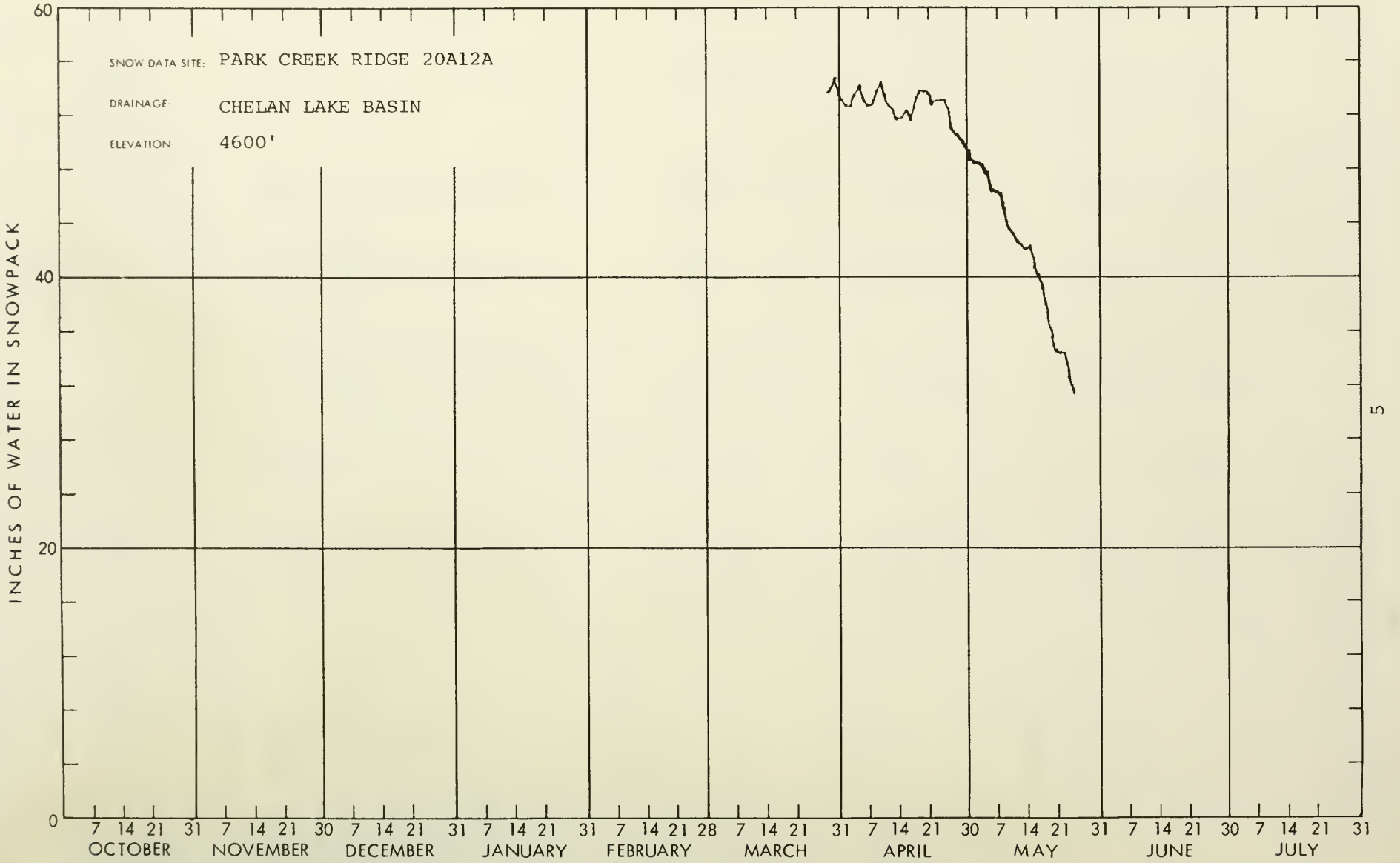
Northwest Slope Cascades - Puget Sound Drainages.

Southwest Slope Cascades - Lower Columbia Drainages.

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorlogical Services of Canada and the National Weather Service.

2/ - Departure from 15-year (1958-72) drainage division average.

WSFB-X13C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DRAINAGE: CHELAN LAKE BASIN
ELEVATION: 4600'
INCHES OF WATER IN SNOWPACK
60
40
20
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5

SNOW DATA TO JUNE 1, 1978 - APPENDIX 1

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average#
UPPER COLUMBIA DRAINAGE							
PEND OREILLE RIVER							
Baree Creek	15B11	5500	5/16	61	33.9	7.8	42.6
Baree Midway	15B16	4600	5/16	28	14.8	1.6	24.5
Baree Trail	15B15	3800	5/16	0	0.0	0.0	0.0
Heart Lake Trail	14C10	4800	5/17	6	2.8	-	10.2
			6/1	Not Measured			1.7
Hoodoo Basin	15C10	6000	5/17	86	43.7	-	48.8
			5/31	75	39.2	-	34.9
Hoodoo Creek	15C01	5900	5/17	79	39.2	-	45.5
			5/31	74	36.9	-	33.5
Lookout	15B02	5250	5/15	43	22.5	0.4	30.9
			5/30	29	14.8	-	-
Nelson	19-Can	3050	5/12	0	0.0	0.0	1.1*
			5/31	0	0.0	-	0.1*
KETTLE RIVER							
Big White Mtn.	154-Can	5500	5/15	44	19.3	7.9	18.4*
			6/1	30	14.9	4.0	10.7*
Carmi	126-Can	4100	5/15	0	0.0	0.0	0.0*
Monashee Pass	48A-Can	4500	5/16	16	7.2	3.7	9.2*
			5/29	3.9	1.8	0.0	2.2*
SPOKANE RIVER							
Granite Peak	15B13A	6000	6/1	58	24.8	-	-
Lookout	15B02	5250	5/15	43	22.5	0.4	30.9
			5/30	29	14.8	0.0	-
Lost Lake	15B14A	6000	6/1	79	35.8	-	-
OKANOGAN RIVER							
Blackwall Mountain	100-Can	6250	5/15	65	30.7	13.0	36.9*
			6/1	Late Report		11.6	29.1*
Brenda Mine	193-Can	4800	5/15	0	0.0	0.0	2.8*
			5/31	0	0.0	-	0.0*
Brookmere	27-Can	3200	5/14	0	0.0	0.0	2.6*
Enderby	130-Can	6250	5/12	103	48.1	30.2	45.0*
			5/29	100	47.4	29.9	38.5*

\# Average based on 1958-72 average

* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO JUNE 1, 1978 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE NAME	Number	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (inches) Last Year	Average #
OKANOGAN RIVER (Cont.)							
Hamilton Hill	107-Can	4900	5/14	17	9.8	0.0	6.6*
Isintok Lake	152-Can	5510	5/13	17	6.7	0.0	5.2*
Lost Horse Mountain	105-Can	6300	5/15	37	11.8	2.9	10.1*
			6/1	20	7.2	1.2	4.2*
McCulloch	4-Can	4200	5/15	0	0.0	0.0	0.6*
Missezula Mountain	106-Can	5100	5/13	16	7.5	0.0	2.6*
Mission Creek	5A-Can	6000	5/15	50	22.0	12.5	19.4*
			5/30	42	19.9	10.2	12.3*
Monashee Pass	48A-Can	4500	5/16	16	7.2	5.0	9.2*
			5/29	3.9	1.8	0.0	2.2*
Mount Kobau	156-Can	5950	5/12	37	13.9	2.3	10.6*
			5/31	24	9.5	0.0	3.9*
New Penticton Res.#2	183-Can	5225	5/15	19	6.7	0.0	6.6*
			5/30	3.5	1.1	-	1.5*
Silver Star Mountain	99-Can	6050	5/14	67	31.6	11.8	26.5*
			5/28	56	28.5	6.2	16.8*
Summerland Reservoir	3A-Can	4200	5/14	2.0	0.8	0.0	2.7*
Trout Creek	3-Can	4700	5/14	2.8	1.0	0.0	1.9*
Vaseux Creek	233-Can	4600	5/15	0	0.0	0.0	0.4*
White Rocks Mountain	70-Can	6000	5/12	53	24.3	0.9	21.3*
			5/31	33	16.4	-	15.5*
ENTIAT RIVER							
Blue Creek G.S.	20B28a	5425	5/30	42	22.7	0.0	-
Entiat Meadows +	20A33a	4540	5/30	30	16.2	0.0	-
Entiat River Trail +	20A34a	3325	5/30	0	0.0	0.0	-
Four Mile Ridge +	20B27a	6800	5/30	72	38.9	0.0	-
Fox Camp +	20A36a	6510	5/30	110	59.4	22.1	-
Pope Ridge	20B20	3540	5/25	0	0.0	0.0	-
Pugh Ridge +	20A32a	6725	5/30	61	32.9	0.0	-
Shady Pass	20A37	6200	5/25	43	23.0	0.0	-
Snow Brushy +	20A35a	3910	5/30	0	0.0	0.0	-
Tommy Creek +	20B21a	4900	5/30	0	0.0	0.0	-
WENATCHEE RIVER							
Stevens Pass	21B01	4070	5/12	76	38.0	15.5	48.3
			5/30	48	24.7	-	36.5
Stevens Pass Sand Shed	21B45	3700	5/12	32	16.0	0.0	-
			5/30	5.8	2.9	-	-

\+ Snow water equivalent estimated from aerial stadia observation
\# Average based on 1958-72 average
* Average for years of record

USDA SCS PORTLAND OREGON 1973

SNOW DATA TO JUNE 1, 1978 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches) Last Year	Average #
YAKIMA RIVER							
Stampede Pass SP	21B10	3860	5/15	18	9.4	-	33.6
			5/25	3.3	2.0	-	18.8
LOWER COLUMBIA DRAINAGE							
PUGET SOUND DRAINAGE							
GREEN RIVER							
Stampede Pass SP	21B10	3860	5/15	18	9.4	-	33.6
			5/25	3.3	2.0	-	18.8
SKYKOMISH RIVER							
Stevens Pass	21B01	4070	5/12	76	38.0	15.5	48.3
			5/30	48	24.7	-	36.5
Stevens Pass Sand Shed	21B45	3700	5/12	32	16.0	0.0	-
			5/30	5.8	2.9	-	-
BAKER RIVER							
Baker Pass +	21A27a	4900	6/1	Marker down		57.0	-
Dock Butte	21A11A	3800	6/1	Late Report		20.0	58.0
Easy Pass	21A07A	5200	5/15	144	72.0	-	90.2
			6/1	Late Report		30.0	73.6
Jasper Pass	21A06A	5400	5/15	150	75.0	-	114.7
			6/1	Late Report		41.0	84.2
Marten Lake	21A09A	3600	5/15	72	36.0	-	81.3
			6/1	Late Report		33.0	66.2
Mount Blum +	21A18a	5800	5/15	148	74.0	-	-
			6/1	Late Report		50.0	-
Rocky Creek	21A12A	2100	5/15	0	0.0	-	12.1
Schreibers Meadow	21A10A	3400	5/15	30	15.0	-	61.7
			6/1	Late Report		3.0	48.6
S. F. Thunder Creek	21A14A	2200	5/15	0	0.0	-	0.0
Watson Lakes	21A08A	4500	5/15	Not Measured		-	73.5
			6/1	Late Report		28.0	61.4

Average based on 1958-72 average
\+ Snow water equivalent estimated from aerial stadia observation

WSFB-X4-L

CORRECTIONS AND ADDITIONS - 1978 SNOW REPORTS - APPENDIX 4

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average #
March 1							
SPOKANE RIVER							
Sunset	15B09A	5600	3/2	117	41.6	-	33.7
May 1							
SPOKANE RIVER							
Above Burke	15B08	6100	4/29	28	13.4	4.7	-

Average based on 1958-72 average

USDA SCS PORTLAND OREGON 1973

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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